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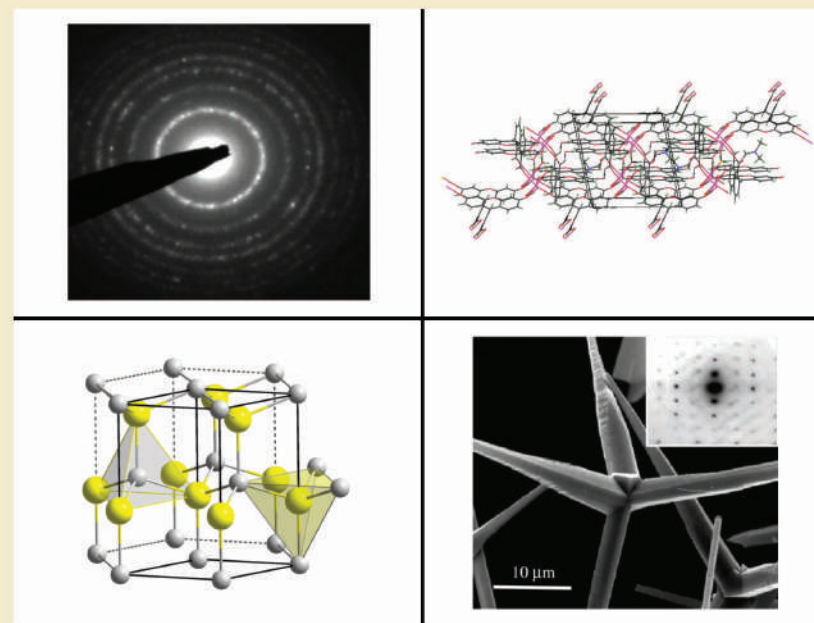
INTERDISCIPLINARY JOURNAL

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KURIAKOSE ELIAS COLLEGE
MANNANAM P.O. KOTTAYAM- 686 561
KERALA, INDIA



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MANNANAM, KOTTAYAM
KERALA, INDIA



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Editorial Note

Kuriakose Elias College has been dedicated to impart a value based higher education since its inception. When its various departments began to concentrate on research, the college focused on the quality of research as well as the publication of research papers. Research across various disciplines are promoted in research departments and laboratories today. With the advances in interdisciplinary research every issue of the journal carries papers on Arts, Science, Literature, Language, Philosophy etc. The journal takes pains to edit papers in accordance with the regulations and stipulations which are part of the approved standards for publishing research papers. The current volume is thirteenth of its kind and it includes outstanding papers from Chemical sciences, Nano materials, Psychology, Commerce, Physics, Material science and various branches of Natural sciences.

At the moment, India is entering a new phase in education. Research occupies a position of significance in the new education policy. Since research journals acquire more prominence in the context, this volume is intended to carry that spirit.

Dr. T. G. Raju

(Member, Editorial Board)

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Fabrication of Chitosan Nano Zinc Oxide film

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Abstract

Chitosan is a linear polysaccharide composed of randomly distributed β -(1 \rightarrow 4)-linked D-glucosamine (de-acetylated unit) and N-acetyl-D-glucosamine (acetylated unit). Chitosan film is regarded as bio functional material, well tolerated by living tissues, particularly applicable as edible coatings to prolong shelf life and preserve quality of fresh foods. ZnO has been included in a number of food linings in packaging to avoid spoilage plus it maintains colours. We prepared Zinc oxide from three different salts of Zinc viz., Zinc chloride, Zinc nitrate and Zinc acetate. After that it was incorporated into the Chitosan medium. Its tensile strength and particle size were characterized. It was found that Zinc oxide film made from Zinc chloride are nano in size and they can be used for further studies.

Keywords: Chitosan, Zinc Oxide, Chitosan nanoZinc oxide film

Introduction

Chitosan is a product of the deacetylation of Chitin, which is widely found in nature. Chitosan is insoluble in water and most organic solvents, which seriously limits both its application [1]. However, Chitosan contains active functional groups that are liable to chemical reactions; thus, chitosan derivatives can be obtained through the chemical modifications of Chitosan. The modification of chitosan has

been an important aspect of chitosan research, showing a better solubility, pH-sensitive targeting, an increased number of delivery systems, etc. The modification of chitosan can be done by acylation, carboxylation, alkylation, and quaternization in order to improve the water solubility, pH sensitivity, and the targeting of chitosan derivatives. The chemical modification of chitosan can improve its physical and chemical properties, as well as expand its applications and relevant research fields.

The unique properties of nanomaterials have motivated the researchers to develop the simpler and expensive techniques to produce nano structures of technologically important materials. Nanocrystalline oxide particles have technological applications; they are used as catalysts, passive electronic components and high-performance ceramics. The potential applications for nanostructured materials include paint pigments, cosmetics, pharmaceuticals, medical diagnostics, catalysts and supports, membrane s and filters, batteries and fuel cells, electronics, magnetic and optical devices, flat panel displays, biomaterials, structured materials, and protective coatings. Zinc oxide is a material, which combines semi-conductivity, piezoelectric and electromechanical properties. It is an important functional oxide, exhibiting near fluorescent emission. Because of its nano-central symmetry, ZnO is piezoelectric, which is the key factor in building sensors and transducers.

Zinc oxide nanoparticles are antibacterial and inhibit the growth of microorganisms by permeating into the cell membrane [2]. The oxidative stress damages lipids, carbohydrates, proteins, and DNA.

Lipid peroxidation is obviously the most crucial that leads to alteration in cell membrane which eventually disrupt vital cellular functions. It has been supported by oxidative stress mechanism involving zinc oxide nanoparticle in *Escherichia coli*. However, for bulk zinc oxide suspension, external generation of H_2O_2 has been suggested to describe the anti-bacterial properties. Also, the toxicity of nanoparticles, releasing toxic ions, has been considered. Since zinc oxide is amphoteric in nature, it reacts with both acids and alkalis giving Zn^{2+} ions.

ZnO has been included into a number of food linings in packaging to avoid spoilage plus it maintains colors. ZnO-NPs provide antimicrobial activity for food packaging. Once they are introduced in a polymeric matrix, it permits interaction of food with the packaging possessing functional part in the conservation. Other benefits also are achieved such as the barrier properties, constancy, and mechanical capability. The use of polymer nanotechnology in packaging was introduced by Silvestre et al. [3] to achieve novel way of packaging that mainly meet the requirements of protection against bacteria. These new materials with improved antimicrobial properties permit also tracking of food during storage and transfer.

Owing to the versatility of Chitosan and nano zinc oxide film, the present work is aimed at developing a chitosan nano zinc oxide film.

Experimental

Preparation of Chitosan film

Chitosan solutions were prepared by dissolving 1g chitosan in 100 mL of 1% acetic acid solution using magnetic stirrer for 2 hours. One

portion of the solution was poured on a glass Petri dish and dried on a hot air oven at a temperature of 70 °C for 5 to 6 hours. Other portion was poured on an aluminum plate and sun dried. After drying, both the films were immersed in 1N NaOH for more than half an hour. After that, films were washed using sufficient amount of water and then dried again. Both the films obtained were slightly brittle and yellow colored and were easy to peel off without cracks

Preparation of zinc oxide powder

ZnO powder was prepared using Zinc chloride and ammonium hydroxide solutions. 50 m L of 0.1 M Zinc chloride solution was taken. 150 mL of ammonium hydroxide solution was then added to this solution slowly with constant stirring. A brown thick precipitate of zinc hydroxide was obtained. The precipitate was then filtered and dried in a hot air oven, thus zinc oxide is obtained and it is then powdered. In a similar way ZnO was prepared from Zinc nitrate and Zinc acetate also.

Preparation of Chitosan nano Zinc oxide film

To 1% chitosan solution 0.2 g of zinc oxide is added in minute quantities with constant stirring using a magnetic stirrer. After mixing zinc oxide uniformly in the solution, it is poured in to a glass Petri dish and dried on a hot air oven at a temperature of 70 degree Celsius for 6 hours. After drying completely, the film is peeled off from the petri dish.

Comparison of tensile strength of pure Chitosan film and Chitosan nano Zinc oxide film

The tensile strength of pure Chitosan film was found to be 24.25 and that of Chitosan nano Zinc oxide film was 20.57. (Table 2)

Normally the strength of the film decreases when metal oxide is added, the zinc oxide film also showed the same characteristics change .

Particle size analysis of Chitosan nano Zinc Oxide film

Particle size analysis of the nano films prepared from different salts of Zinc were carried out (Table 1) and it was found that the film prepared from Zinc chloride solution has somewhat nano size [4] and it can be recommended for future studies.

Conclusion

Chitosan nano Zinc oxide film was prepared using three different salts of Zinc, viz ;Zinc chloride, Zinc nitrate and Zinc acetate. Their tensile strength and particle size were determined and it was found that the tensile strength of metal incorporated film is less than the pure Chitosan film. Nano sized film was obtained from Zinc chloride.

Tables

Table1. Particle size analysis

Znic oxides	Sample	Particle size
Zinc chloride	99%	726.75 nm
Zinc nitrate	98%	1318.42 nm
Zinc acetate	98%	1133%

Table 2. Tensile Strength

Zinc oxide in Chitosan media	Tensile strength	Chitosan pure	Tensile strength
Specimen 1	20.57	1	24.25
2	24.35	2	29.70
3	13.45	3	31.48
4	24.79	4	36.60
5	13.38	5	36.63
Average	17.308	Average	31.732

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Life Satisfaction and Perceived Stress between Migrant and Non-Migrant Indian Students

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Abstract

The present study on life satisfaction and perceived stress among the migrant and non- migrant Indian Students is conducted from a psycho social background where the migration to other countries in seek of better education is in steady rise and the students are found to be experiencing high psycho social distress. On this basis, this research aims to analyse the life satisfaction and perceived stress among the migrant and non-migrant Indian Students. The sample of the research consisted of 50 Migrant Indian Students and 50 Non- Migrant Indian Students. Purposive sampling technique was used for the study. The Perceived Stress Scale (PSS-10) and Satisfaction with Life Scale (SWLS) were used to assess the life satisfaction and perceived stress. The data collection was carried using Google forms. Mann Whitney U test was used to find the significant difference between the life satisfaction and perceived stress and the relationship between these variables was examined using Spearman's rank correlation. The study found that life satisfaction and perceived stress are negatively correlated. Also, no significant difference in life satisfaction and perceived stress were found between Migrant and Non-Migrant Indian student s. However, the mean rank of life satisfaction was higher among migrant students whereas, the mean rank of perceived stress was higher among non-migrant Indian students.

Key words: Life Satisfaction, Perceived Stress, Migrant Indian Students and Non-migrant Indian Students.

Introduction

Migration is basically a movement of a group of people from a place to another for a particular purpose. Education is a driving force for migration in middle- income groups as they aspire to attain a higher education and secure a white-collar job so that they can earn higher wages and climb the social and economic ladder (Browne, 2017). Student migration refers to the movement of students to outside countries of birth or citizenship.

Though migration provides immense opportunities to upgrade oneself academically, professionally and personally; it also imposes several challenges that can make the students difficult to cope with once they are there in the host land. The entire process of migration takes a toll on the mental health of migrants. The adaptation of international students to their new host cultures has been the object of multiple empirical research (Ward et al., 2001).

The whole process of adjustment to a new educational and social environment itself could be a stressful process. But as a result of displacement and during adjustment periods in their host countries, most college students experience stress throughout this process and often endure economic hardship and precarious living conditions. Acculturation was reported to be one major cause leading to increased perceived stress and diminished life satisfaction (Church (1982).

Method

Objectives of the study

- To assess the relationship between perceived stress and life satisfaction among students.

- To check if there is significant difference in life satisfaction between migrant and non- migrant Indian students.
- To check if there is a significant difference in perceived stress between migrant and non- migrant Indian students.

Hypotheses of the study

H01: There is no significant relationship between perceived stress and life satisfaction among students.

H02: There is no significant difference in life satisfaction between migrant and non- migrant Indian students.

H03: There is no significant difference in perceived stress between migrant and non- migrant Indian students.

Participants

The study was conducted among migrant and non-migrant Indian college students. Both male and female students are selected for the study. The sample consists of 50 Migrant Indian Students and 50 Non-Migrant Indian Students. The geographical location of the samples was found to be from various states of India. The Non- Probability sampling method was adopted for the study. Purposive sampling method was used in the present study as the participants are chosen in a deliberate manner to include potential individuals assumed to give meaningful information about the subject under study. College student sand migrant students from India only were included in the study.

Measures Used

Perceived Stress Scale (PSS-10): The Perceived Stress Scale (PSS-10) is the most widely used psychological instrument for measuring

perceptions of stress. The scale is used to measure the degree to which situations in one's life are considered stressful. The PSS-10 was developed by Sheldon Cohen to measure college student's levels of stress. The scale consists of 10 items asking participants to rate the frequency of stressful events that occurred in the past month. PSS-10 demonstrated adequate internal consistency reliability ($\alpha = .78$) and convergent validity.

Satisfaction with life scale (SWLS): The Satisfaction with Life Scale (SWLS) is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction (not a measure of either positive or negative affect). It was developed by Ed Diener et al (1985). Participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from 7 strongly agree to 1 strongly disagree. The scores range from 5 to 35, with higher scores indicating greater life satisfaction. The SWLS has been examined for both reliability and validity. The SWLS has shown strong internal reliability and moderate temporal stability. Adequate validity has been reported. Internal reliability of the scale has been estimated to range between .80 to .89, and temporal stability to range from .64 to .84. Diener et al. (1985) reported a coefficient alpha of 0.87 for the scale and a 2-month test-retest stability coefficient of 0.82.

Data Collection Procedure

The data was collected online from the migrant and non- migrant Indian students. The questionnaires were shared as google forms. The migrant student's data was collected from migrant Indian students who pursue higher studies in foreign universities. The data from the non-

migrant students were collected from the colleges in Kerala state. The consent of the student participants was collected through online.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) software was used to analyse the key variables. Normality test was done by using Shapiro Wilk test. The data of the research was claimed as normal if p value > 0.05. Based on the normality test done the data was not found to be normal. Non-parametric tests have been used as the normality assumption was not fulfilled. Mann Whitney U test was used for measuring the significance of difference between two means of job satisfaction and perceived stress. The relationships between these variables were examined using Spearman's rank correlation. Spearman rank correlation is a non-parametric test that is used to measure the degree of association between two variables.

Results

Table 1: Spearman Rank Correlation between perceived stress and life satisfaction among students.

Variables	N	r	p
Life Satisfaction			
	100	-.506**	.000
Perceived Stress			

**, p< 0.05, Correlation is significant at the 0.01 level (2-tailed)

Table 1 shows the Spearman Rank Correlation between perceived stress and life satisfaction among students. The Spearman rank correlation coefficient (r) is -.506** and p value is 0.000. From the above result, the p (0.000) value obtained is lesser than 0.05

($p < 0.05$). Hence, we reject the null hypothesis (H_0) which stated that ‘there is no significant relationship between Life Satisfaction and Perceived Stress among Migrant and Non- Migrant Indian Students’. Therefore, we accept the alternative hypothesis which states that there is a relationship between Life Satisfaction and Perceived Stress among Migrant and Non- Migrant Indian Students. The Spearman rank correlation coefficient ($r = -0.506^{**}$) indicates, there exist significant negative correlation between Life Satisfaction and Perceived Stress among Migrant and Non- Migrant Indian Students. This indicates that, as life satisfaction increases, perceived stress decreases.

The result coincides with what was stated by other authors such as (Thakur, 2017; Puri, Yadav, & Shekhawat, 2016; Alleyne et al., 2010; Paschali & Tsitsas., 2010) who also provide evidences for a negative correlation between Life Satisfaction and Perceived Stress. College belonging was found to have a moderating effect on stress and life satisfaction in college students. Thus, the students having a high and major belonging were found to have low perceived stress and high life satisfaction (Çivitci, 2015).

Table 2: *Mann-Whitney U test result showing significant difference in Life Satisfaction between Migrant and Non- Migrant Indian Students.*

Variable	Group	N	Mean	U	p
Life Satisfaction	Non- Migrant Indian students	50	46.34	1.042	0.151
	Migrant Indian students	50	54.66		

Table 2 shows the Mann-Whitney U test result showing significant difference in Life Satisfaction between Migrant and Non-Migrant Indian Students. Among the 100 sample from which data was collected, 50 were Migrant Indian Students and 50 were Non-Migrant Indian Students. The mean rank of Life Satisfaction was found to be 46.34 in Non-migrant Indian Students and 54.66 in Migrant Indian Students. The Mann-Whitney U test value is 1.042 and the p-value is 0.151 ($p > 0.05$). The result shows that the p-value (0.151) is greater than 0.05 value, hence there is no significant difference in Life Satisfaction between Migrant and Non-Migrant Indian Students. Therefore, the null hypothesis is accepted which states that there is no significant difference in Life Satisfaction between Migrant and Non-Migrant Indian Students.

On comparing the mean rank of Life Satisfaction between Migrant and Non-migrant Indian Students, it can be observed that the value of life satisfaction is higher among migrant Indian students. This could be explained in line with the definition of life satisfaction, which explains it as an individual subjective appraisal as to whether his or her aspirations and achievements have been accomplished. It is the desire of today's young generation to go and study in foreign countries. Thus, the sense of accomplishment that one might feel after gaining admission into an abroad university of their own choice is unparalleled. This would automatically serve to increased life satisfaction. Similar findings stating increased life satisfaction have been reported. Nilsson (2015) had found that the migrant students in Northern Sweden have recorded a significant increase in their life satisfaction.

Table 3: *Mann-Whitney U test result showing significant difference in perceived stress between Migrant and Non- Migrant Indian Students.*

Variable	Group	N	Mean	U	p
Perceived Stress	Non- migrant Indian Students	50	55.34	1.008	0.095
	Migrant Indian Students	50	45.66		

Table 3 shows the Mann-Whitney U test result showing significant difference in Perceived Stress between Migrant and Non-Migrant Indian Students. The mean rank of Perceived Stress was found to be 55.34 for Non- migrant Indian Students and 45.66 in Migrant Indian Students. The Mann-Whitney U test value is 1.008 and the p-value is 0.095 ($p > 0.05$). The result shows that the p-value (0.095) is greater than 0.05. Hence, there is no significant difference in Perceived Stress between Migrant and Non- Migrant Indian Students. Therefore, the null hypothesis is accepted which states that there is no significant difference in Perceived Stress between Migrant and Non- Migrant Indian Students.

Implications of the study

The number of students migrating from India to several other countries for academic purposes is increasing every year. Several prompting reasons may be the cause for this significant rise in Indian students travelling to other abroad countries for higher their education. The educational quality provided by the Universities of India and the lack of having a clear system for quality control of education are some

of the major reasons why Indian students go abroad to study. Also, it provides immense opportunities to upgrade oneself academically, professionally and personally. A desire for a better life compels the youngsters to opt for a life of diaspora.

Indian students heading to other countries are attracted by the low cost of education, courses taught in English, the perceived high quality of education and the availability of paid part-time work opportunities during study, together with the perceived availability of good jobs. On analysing the results, it is found that the students studying in India are experiencing low life satisfaction and high perceived stress than the migrated Indian students. The reasons are countless, but failure in examination, unemployment, and depression are the major ones. These findings can be useful to educators and campus administrators by sensitizing the students to ways to improve student life and develop coping strategies for stress. In addition, the study also lays down crucial implications for mental health professionals to design appropriate mental health interventions for the students experiencing high perceived stress. The aspects that lead to lower life satisfaction among these students should be examined. If there are issues related to stress among students, necessary coping strategies for dealing with the stress should be taught to students. The importance of the results of this study is that it can be used as a guideline to implement techniques to reduce the level of stress in future research on perceived stress and life satisfaction. It has to be noted that until India matches the standards of education offered abroad in terms of both quality and cost, Indian students will continue

to move abroad to fulfil their dreams of pursuing the kind of education they feel is right for them.

Conclusions

The purpose of the present study was to investigate the relation between Life Satisfaction and Perceived Stress between Migrant and Non- Migrant Indian students. The objectives of the study were to examine the relationship between Life Satisfaction and Perceived Stress among students and to examine if there is any significant difference in Life Satisfaction and Perceived Stress between Migrant and Non- Migrant Indian students. Perceived Stress Scale (PSS-10) and Satisfaction with Life Scale (SWLS) were used for the collection of the data. The basic sample of the research consists of 100 students. The sample consists of 50 Migrant Indian Students and 50 Non-Migrant Indian Students. Purposive sampling method was used in the present study as the participants are chosen in a deliberate manner to include potential individuals assumed to give meaningful information about the subject under study. Mann Whitney U test was used for measuring the significance of difference between two means of job satisfaction and perceived stress. The relationships between these variables were examined using Spearman's rank correlation.

The results of the study were: Life Satisfaction and Perceived Stress has significant negative relationship, there is no significant difference in Life Satisfaction between Migrant and Non- Migrant Indian students and there is no significant difference in Perceived Stress between Migrant and Non- Migrant Indian students.

Scope for further study

Based on the various findings and insights obtained from the current study, few suggestions can be made regarding the future research which can be taken up. The study could be elaborated by increasing the sample size and by adding more demographic details like age, gender, stream of course etc. A wider sample size should be included for a more accurate research and results. For the upcoming researches, studies can be done on more variables other than the variables used in this study. It is better to also incorporate qualitative methods which can be more beneficial. Studies can be conducted among different sample groups. These variables could be analysed among migrant students other than Indians, studying in foreign universities.

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Synthesis and Characterization of Iron Oxide Nanoparticles Using Co-Precipitation Technique

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Abstract

Iron oxide nanoparticles synthesized by co-precipitation technique were structurally, optically and morphologically analyzed using XRD, UV, FTIR and SEM techniques. From the X-ray Diffraction (XRD) analysis, we found that the prepared sample 1 contains crystalline Fe_3O_4 (Magnetite) nanoparticles of particle size 23nm having cubic symmetry and face centered lattice. But the decrease in drying temperature during the synthesis process of sample 3 shows that it contains nanoparticles of crystalline β - Fe_2O_3 phase. The particles in this sample have cubic symmetry and body centered lattice. The particle size is found to be 12.907 nm. The optical characterization of the Iron oxide nanoparticles was done by UV analysis and Fourier Transform Infrared (FTIR) spectroscopy. By UV analysis, the band gap energy of each sample is calculated. The values of both direct and indirect energy band gap of the Magnetite sample are classified sample 1 and sample 2 as a semiconductor. The FTIR analysis is helped for the identification of atomic arrangement, chemical bonds and modes of vibration of these bonds in the three samples. The morphological characteristics of Iron oxide nanoparticles were studied using Scanning Electron Microscopy (SEM).

Keywords: Iron oxide, XRD, FTIR

Introduction

Nanotechnology is the science that deals with matter at the scale of 1 billionth of a meter (i.e., 10^{-9} meter = 1 nm) and is also the study of manipulating matter at the atomic and molecular scale. Nanoparticles are at the forefront of rapid development in nanotechnology. Their exclusive size-dependent properties make these materials indispensable and superior in many areas of human activities [1-3]. In general, the size of a nanoparticle spans the range between 1 and 100 nm. Iron oxides are common natural compounds and can also easily be synthesized in the laboratory. Iron and oxygen chemically combine to form iron oxides (compounds). There are 16 iron oxides, including oxides, hydroxides, and oxide-hydroxides. Generally, iron oxides are prevalent, widely used as they are inexpensive, and play an imperative role in many biological and geological processes. They are also extensively used by humans; as iron ores in thermite, catalysts, durable pigments (coatings, paints, and colored concretes), and haemoglobin [4]. The three most common forms of iron oxides in nature are magnetite (Fe_3O_4), maghemite ($\gamma\text{-Fe}_2\text{O}_3$), and hematite ($\alpha\text{-Fe}_2\text{O}_3$).

Chemical synthesis of iron oxide nanoparticles

Wet chemistry synthesis is widely used to fabricate nanoparticles. Under particular circumstances, well-structured crystalline clusters of nanoparticles with extremely small size (less than 10nm) can be fabricated easily by using wet chemistry synthesis [4-6]. For example, the co-precipitation technique can be used. Ferrous sulphate and Ferric sulphate, both in aqueous solutions, are mixed in a particular molar ratio. Alkaline solution is slowly dropped into the mixture until the pH

approaches 10 with mechanical or magnetic stirring. Black slurry precipitation is produced immediately when alkaline solution is added. After a long period of vigorous stirring, hydrochloric acid is added to stabilize the nanoparticles. The precipitation is rinsed with acetone and D.I (de-ionized) water after fabrication.

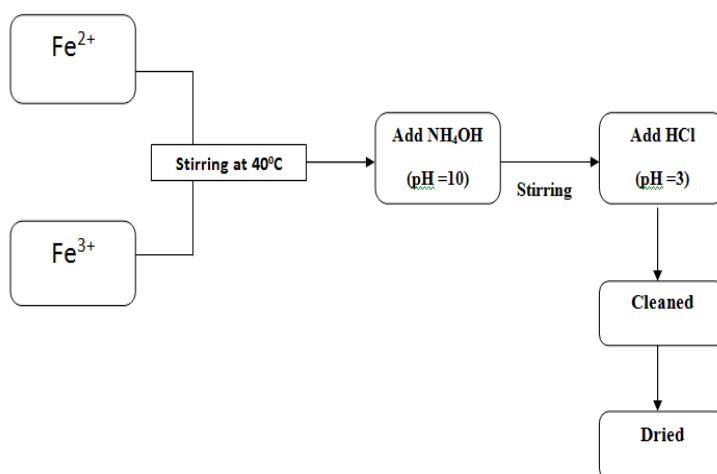


Figure (1): Synthesis process of Ironoxide Nanoparticles.

Table 1: The preparation and parameter variation of different samples.

Sample	Reaction Temperature	Molar Ratio (Fe ³⁺ :Fe ²⁺)	Stirrer	pH (HCl)	Drying Temperature	Separation Technique
1	40	1:1.8	Magnetic	3	150	Whatman No.41 filter paper
2	40	1.8:1	Magnetic	3	150	Whatman No.41 filter Paper
3	40	1.8:1	Magnetic	3	100	Centrifuge Method (1500 rpm)

Structural characterization - XRD Analysis

X-Ray Diffraction (XRD) can be used to estimate the size of the particles and the crystalline structure of the sample. Line broadening from the XRD pattern is used to calculate crystal sizes, using Debye-Scherrer formula. X-ray diffraction patterns have been widely used in nanoparticles research as a primary characterization technique for obtaining features like crystal structure, crystallite size, lattice constants and strain.

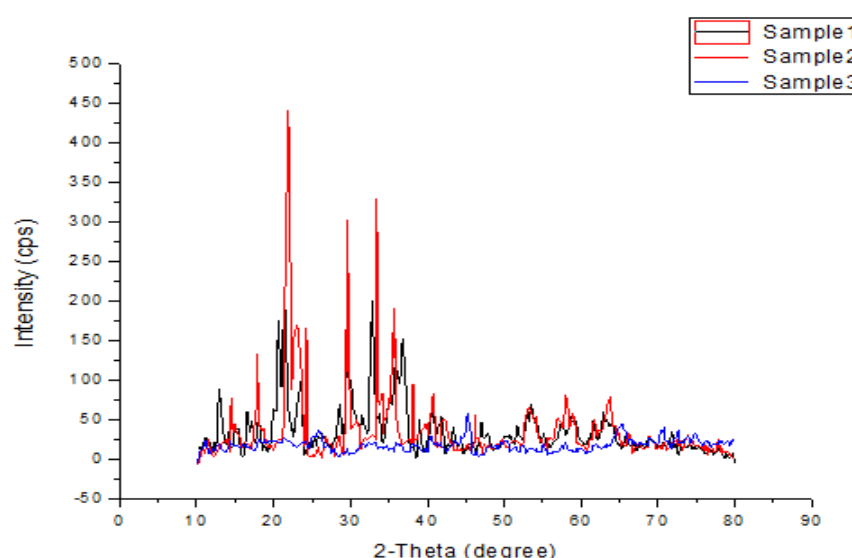


Figure (2): The XRD pattern of the three samples.

Sample 1: The XRD patterns of the compound were recorded using the X-Ray diffractometer with Cu-K α radiation ($\lambda=1.5405$). The X-ray power diffraction data obtained for the sample predicts the crystalline nature of the iron oxide particles in it.

The major characteristic peak in this pattern is obtained at 21.397° which can be related with the (200) planes of Fe_3O_4 . Some

other strong peaks are obtained at 2θ values 32.862° , 20.636° and 36.794° . This crystalline Iron oxide sample has cubic symmetry and have face centered lattice. (The result is compared with standard JCPDS data, CAS Number: 79-0416). The particle size, using the Debye-Scherrer formula is found to be 23.14 nm

Sample 2: The major characteristic peak in this pattern is obtained at 20.762° which can also be related with planes of Fe_3O_4 . The strong peak at $2\theta = 29.541^\circ$ can be related with (220) plane. Some other strong peaks are obtained at 2θ values 32.950° and 35.909° . This crystalline Iron oxide sample is similar to sample 1, which has cubic symmetry and have face centered lattice. (The result is compared with standard JCPDS data, CAS Number: 89-0951). The particle size, using the Debye-Scherrer formula is found to be 22.12 nm

Sample 3: The major characteristic peak in this pattern is obtained at $2\theta = 37.444^\circ$ which can be related to the (400) planes of $\beta\text{-Fe}_2\text{O}_3$ (beta phase). Some other peaks are obtained at 2θ values 54.056° , 22.123° and 61.930° . This can be related to the presence of crystalline iron oxides. Comparison of the results with standard JCPDS data (CAS Number: 39-0238) proves the presence of beta phase. This sample has cubic symmetry and body centered lattice. The particle size, using the Debye-Scherrer formula is found to be 12.907 nm.

Optical characterization-UV & FTIR analysis

The UV Spectroscopy helps to study the absorption and transmittance spectrum of the samples. Mainly the UV absorption spectrum was used to study the optical characteristics of iron oxide nanoparticles. This spectrum shows the relation between the

wavelength and absorbance of each sample. The band gap, E_g (for a direct transition between the valance and conduction band), is obtained by fitting the experimental absorption data with the following equation: $(\alpha h\nu)^2 = A (h\nu - E_g)$, for a direct band gap semiconductor, where $h\nu$ is the photon energy, α is the absorption coefficient, E_g is the band gap, and A is the characteristic parameter independent of photon energy. A board absorption peak is found to be around 400 nm. To measure the energy band gap from the absorption spectra, $(\alpha h\nu)^2$ versus $h\nu$ graph is plotted. The extrapolation of the linear portion of the plot to $(\alpha h\nu)^2 = 0$ gives the value of energy band gap. The band gap energy of sample 3 is less than that of its bulk Fe_2O_3 . It is seen from XRD that sample three is in β phase ($\beta\text{-Fe}_2\text{O}_3$).

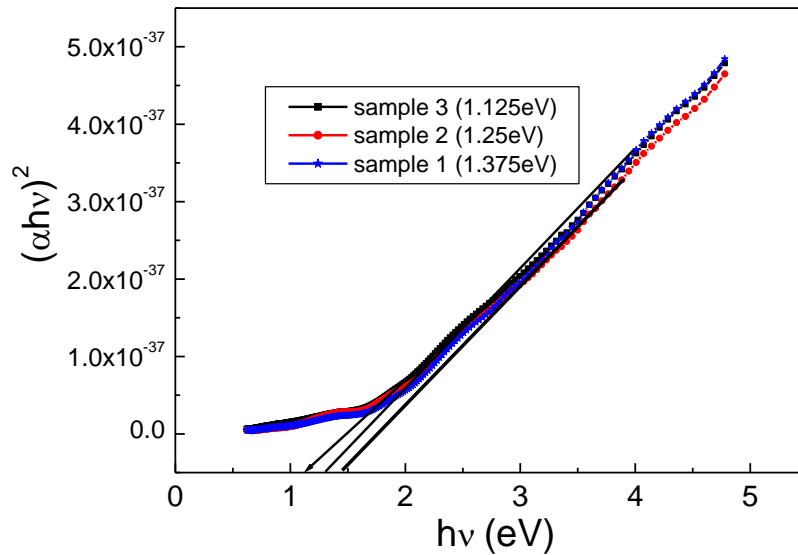


Figure (3): Variation of $(\alpha h\nu)^2$ vs. photon energy ($h\nu$), for $\text{-Fe}_2\text{O}_3$ nanoparticles in different samples.

FTIR analysis

FTIR analysis is used for the identification of atomic arrangement and the concentration of chemical bond present in the samples. The spectra are analyzed in the wave range of $4500\text{--}500\text{ cm}^{-1}$. Following figures shows the FTIR spectrum of the three samples.

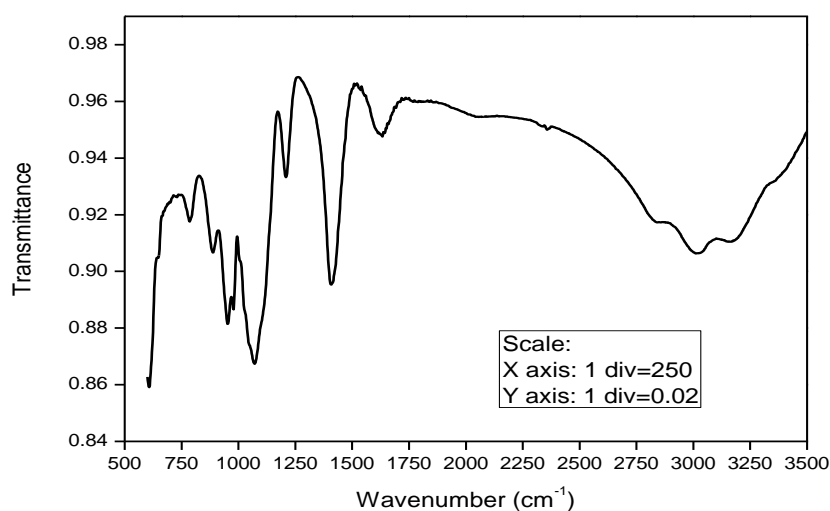


Figure (4): FTIR Spectra of Iron Oxide Nanoparticles (Sample1) synthesized via Co-precipitation

From the figure, it is clear that the peak about $3000\text{--}3400\text{ cm}^{-1}$ is due to O-H stretching vibrations. It also exhibits an intense peak about 640 cm^{-1} , this is due to the stretching vibration mode associated to the Metal-Oxygen absorption band (Fe-O bonds in the crystalline lattice of Fe_3O_4).

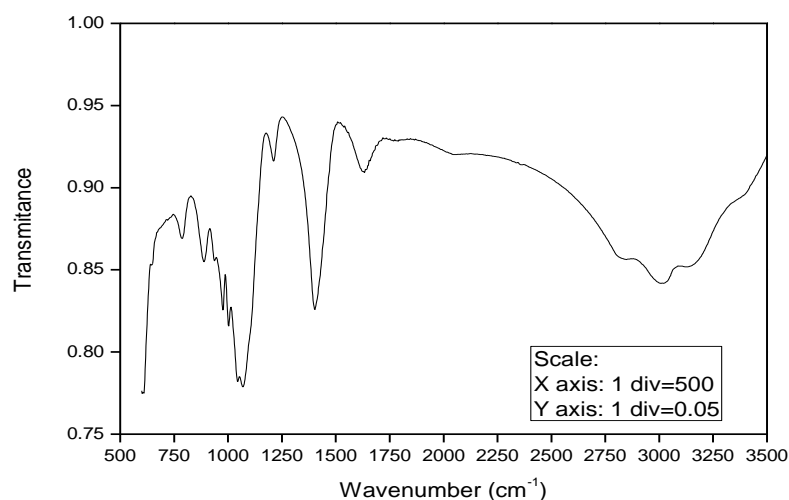


Figure (5): FTIR Spectra of Iron Oxide Nanoparticles (Sample2) synthesized via Co-precipitation.

From the figure, it is clear that the sample 2 has a similar FTIR spectrum to that of sample 1. This sample shows intense absorption peaks lies at about $500\text{--}750\text{ cm}^{-1}$ and $1000\text{--}1500\text{ cm}^{-1}$. The peak lies around 600 cm^{-1} is due to the stretching vibration mode of the Fe-O bonds. The O-H in plane and out of plane bonds appears at $1400\text{--}1500\text{ cm}^{-1}$ and $950\text{--}800\text{ cm}^{-1}$, respectively. The out plane bonds are less intense than in plane bonds.

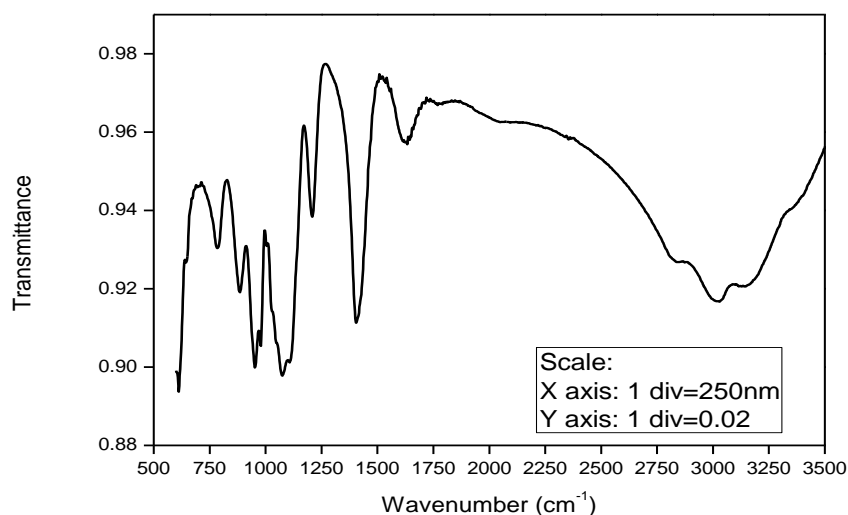


Figure (6): FTIR Spectra of Iron Oxide Nanoparticles (Sample3) synthesized via Co-precipitation.

The spectrum shows intense peaks in five band ranges. The peak in the range 650 cm^{-1} is due to the stretching vibration mode of Fe-O bonds. The absorption band between $900\text{--}1000\text{ cm}^{-1}$, corresponds to bending vibration associated to the O – H bond. The absorption band in the range 1400 cm^{-1} is also due to the presence of O-H in plane bonds. The peak in the range $3000\text{--}3500\text{ cm}^{-1}$ is due to O-H stretching vibrations.

FTIR spectrum of all the three samples is very helpful in determining the bonds and modes of vibrations of these bonds. The observations are matched with standard results.

Morphological analysis

Scanning Electron Microscope is a very useful tool for looking the morphology at nanoscale range of different powder samples. Surfaces details, homogeneity and elemental composition can be

determined in one experiment on the same sample. The study of surface morphology of iron oxide nanoparticles has been carried out using Scanning Electron Microscope. Figure(7) shows the SEM micrograph of the sample 1. Nanoflakes are visible in the figure.

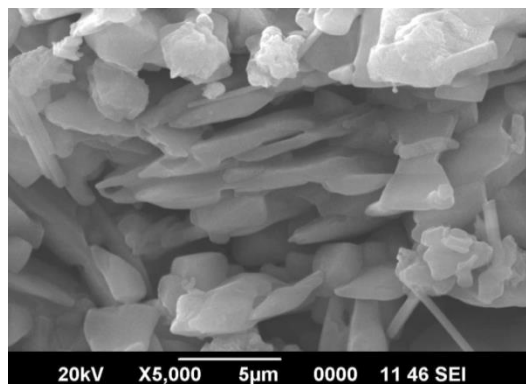


Figure (7): The SEM micrograph of sample 1 showing nanosized flakes

Conclusion

The Iron oxide nanoparticles were successfully synthesized by co-precipitation technique. The structural, optical and morphological features of three samples are studied from XRD, UV, FTIR and SEM techniques.

From the X-ray Diffraction (XRD) analysis, we found that in sample 1, there is the existence of crystalline nanoparticles of Fe_3O_4 (Magnetite) having cubic symmetry and face centered lattice. The particle size of the sample is found to be 23.14 nm using Debye-Scherrer formula. The sample 2 is almost similar to that of sample 1. But the analysis of the sample 3 shows that it contains nanoparticles of crystalline $\beta\text{-Fe}_2\text{O}_3$ phase. The particles in this sample have cubic symmetry and body centered lattice. The particle size is found to be 12.907 nm. The optical characterization of the Iron oxide nanoparticles

was done by UV analysis and Fourier Transform Infrared (FTIR) spectroscopy. By UV analysis, the band gap energy of each sample is calculated. The values of both direct and indirect energy band gap of the Magnetite sample are classified sample 1 and sample 2 as a semiconductor. The FTIR analysis is helped for the identification of atomic arrangement, chemical bonds and modes of vibration of these bonds in the three samples. The morphological characteristics of Iron oxide nanoparticles were studied using Scanning Electron Microscopy (SEM). But this SEM data is not sufficient to explain the morphology of these nanoparticles as we need magnifications below 1 μ m. The magnetic studies of these Iron oxide particles have very importance. In order to use iron oxide nanoparticles in biomedical field, we have to coat these nanoparticles with surfacants. Iron oxide nanoparticles due to their strong magnetic properties were used first in biology and then in medicine.

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Altruism and indecisiveness among siblings

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Abstract

The purpose of the study was to find out the relationship between Altruism and Indecisiveness among siblings based on their birth order. The study was conducted among a sample of 60 siblings within the age range of 15 to 28 years. The altruistic behaviour among siblings was measured using the Adapted Self-Report Altruism Scale by Rushton, Witt and Boleman (2009). The decision-making process has been measured using the indecisiveness scale (IS) by Randy O Frost and Deanna L. Shows (1993). The data was collected through the purposive sampling method and analyzed using independent samples t-test and Pearson Correlation analysis. On analyzing the results, a significant negative correlation between altruism and indecisiveness was found among siblings based on their birth order. The findings of the study also suggest that there is no significant difference among siblings based on their birth order in terms of altruism, and indecisiveness.

Keywords: altruism, indecisiveness, siblings, correlation.

Introduction

Alfred Adler (1928) is credited with being the first psychologist to suggest that birth order might affect a person's personality and lifestyle. He contended that birth order significantly influences the personality development of the child by giving rise to a unique system of power created in each family. For instance, birth order influenced children to differentiate themselves from their siblings in order to reduce competition, establish their own identities within the family and ensure their portion of parental love and attention. This differentiation then shapes their choices and the development of their stable personality traits, such as dominance and authority (Freese, Powell, & Steelman, 1999).

The term birth order refers to the order in which the children of a family were born. Adler (2013) believed that birth order had a significant and predictable impact on a child's personality: First-born children have inherent advantages due to their parents recognizing them as "the larger, the stronger, the older." Second-born children are constantly in the shadow of their older siblings. They are incessantly "striving for superiority under pressure," driven by the existence of their older, more powerful sibling. Youngest children operate in a constant state of inferiority. They are constantly trying to prove themselves, due to their perceptions of inferiority relative to the rest of their family. According to Adler, there are two types of youngest children.

The more successful type "excels every other member of the family, and becomes the family's most capable member." Another,

more unfortunate type of youngest child does not excel because he lacks the necessary self-confidence. This child becomes evasive and avoidant towards the rest of the family.

Only children, according to Adler, are also an unfortunate case. Due to their being the sole object of their parent's attention, the only child becomes "dependent to a high degree, waits constantly for someone to show him the way, and searches for support at all times." They also come to see the world as a hostile place due to their parents' constant vigilance.

Altruism can be defined as the enduring tendency to think about the welfare and rights of other people, to feel concerned and empathetic for them, and to act in a way that benefits those (Van Emmerik et al., 2005). Several sources of altruistic motivation and conduct have emerged, ranging from biological to socio-cultural. External influences such as religious upbringing or socioeconomic status may also play a role. Close relatives (such as parents and siblings) share many more of a person's genes than others do. According to evolutionary theory, an interest in helping close kin spread those shared genes by surviving and reproducing—a sort of favouritism called kin selection—helps explain why humans are more likely to help those relatives than strangers or even distant family members.

Indecisiveness is the generalized difficulty to make satisfying decisions (Appel, English & Burghardt, 2021). When individuals are indecisive, they evaluate and reevaluate the same set of information. We may spend a long time weighing the pros and cons of every option,

only to be paralyzed by them. Because delay our decision-making until it is almost too late, we may be forced to choose something in the end or let someone else choose it for us.

Need and significance of study

The social landscape have looked wildly different over the past years. Because of the quarantines and social restrictions made necessary by the COVID-19 pandemic, social interactions were greatly reduced as many found themselves spending the majority of their time at home with family, and away from friends and colleagues. Life in lockdown has necessitated close, constant contact with our families and partners. Adolescents and adults typically spend decreasing amounts of time with family members, but the COVID-19 pandemic changed this pattern for many youths (BBC, 2020). Understanding how adolescents perceived change in relationship quality with family members during the pandemic offers novel insight into adolescents' relationships with their families and psychosocial functioning during this period. Childhood bonding between siblings plays a crucial role in shaping our relationships as an adult. Sibling rivalry exists in every family that has more than one child, in varying degrees. Children move away from home in search of higher studies and other work opportunities yet due to quarantine family members had the time together. Thus this study intended to understand how perceived change in family relationship quality has affected attitudes of altruism and indecisiveness among siblings.(Indiatoday,2022)

Birth order is an extensively studied and contested concept in social science research. It has been used to examine topics such as

personality, risk-taking behaviour, context-specific learning, relationships, narcissism, and prosociality. While there has been a considerable amount of research done on birth order, there has been little to no research that has examined the influence of birth order on altruistic attitudes (Schwär et al., 2012)

Review of literature

Birth order has been a topic of discussion for social scientists for a long time. Psychologist Alfred Adler was one of the first theorists to incorporate birth order in his work in 1918 (Eckstein et al., 2010; Manaster, 1977). He believed that “before we can judge a human being we must know the situation in which he grew up. An important moment is the position which a child occupied in his family constellation” (Adler, 1927). Adler contended that each child is treated differently within a family depending on their birth order. This differential treatment is what influences the child’s worldview and life goals and lifestyle (Olson and Hergenhahn, 2011). Adler also found that parents and members of society can impose beliefs about birth-order characteristics onto children, which can affect expectations, rearing practices, and ultimately a child’s outcomes in life (1956).

Long before and independently from any scientific research, there have been stereotypes and anecdotes about birth order. Interest in how siblings differ is so intuitively appealing that it has steadily become a focus of research. The first attention on birth order is attributed to Sir Francis Galton (1874). Working with information about hundreds of successful scientists, Galton observed an

overrepresentation of firstborns, indicating that birth order was important.

Literature dwells on two definitions of birth order, the ordinal position or the actual order of birth of siblings, and the psychological position or the role adopted by the child in interactions with others (Shulman & Mosak, 1977). Psychological order is defined as the way an individual perceives and interprets one's position in a family constellation (Campbell, et al., 1991). Referring to psychological birth order is considered an Adlerian position, whereas considering the ordinal birth position is considered non-Adlerian (Watts & Engels, 1995). The majority of research examines ordinal position (Eckstein, et al., 2010). The difference between birth order and ordinal position is merely taxonomic (Shulman & Mosak, 1977) and the two terms are used interchangeably (Adams, 1972). While ordinal position describes positions as first, second, third, and so on; birth order depicts oldest (biggest), middle, youngest (smallest), and only children.

In 2005 Robert Rowthorn conducted a study on "The Evolution of Altruism" where the existing theory is that of Hamilton, who considers that altruism is generated by the search for the perpetuation of genes. This theory of eminently biological load values that in nature many of the altruistic behaviours are directed towards members of our own family or with whom we have some kind of consanguineous relationship. The act of altruism would allow our genes to survive and reproduce, even though our own survival could be impaired. It has been observed that a large part of altruistic behaviours is generated in different animal species.

In 2012 Gerhard Schwär and Amber Mahony conducted a study on “Birth Order Position and Prosocial Tendencies”, the study investigated the relationship between psychological birth order position and different types and levels of prosocial tendencies. An ex postfacto, between-family research design was used. Data on prosocial tendencies were obtained from 888 college students (females = 80.4%, mean age = 20.94 yrs, SD = 2.83; males = 19.6%, mean age = 21.62 yrs, SD = 2.44). Participants completed a biographical questionnaire as well as the Prosocial Tendencies Measure (Carlo & Randall, 2002). Data were analysed to compare and contrast prosocial tendencies between demographics using parametric ANOVAs, t tests and the Mann–Whitney Test. Significant differences in prosocial tendency scores were only found between middle-borns and last-borns on altruism, with middle-borns scoring significantly higher in prosocial tendencies than last-borns. There is no evidence to suggest that a definitive link between prosocial tendencies and birth order exists in this study.

In 2016 Deanna R. Smith from Hamline University conducted a study on “The Effect of Birth Order on Attitudes Toward Altruism” analyses evaluated different factors in altruistic attitudes, such as risk taking, family size, gender, and rewards. Results indicated that birth order does have an effect on certain attitude measures of altruism and as well as effects for race and gender.

In 2022, Gentrit Berisha, Besnik A Krasniqi and Rrezon Lajçi conducted a study on the topic “Birth order revelations about managers” which aims to reveal the effects of birth order in decision-making style, conflict handling style and propensity for participative

decision-making. The intention is to open the perspective of birth order research in organizational studies, as an important individual difference of managers. Design/methodology/approach A survey was conducted with 230 managers from different industries in Kosovo. Self-report measures were used for decision-making style, conflict handling style and participatory decision-making constructs. Findings Results indicate that only children are more avoidant and spontaneous decision-makers. Firstborns are rational in decision-making and prefer problem-solving in conflict handling. Middleborns are intuitive decision-makers and use compromising in conflict handling. Lastborns make decisions rationally and use both compromising and problem-solving in conflicting situations. In addition, lastborns appeared to have a more positive attitude toward participative decision-making, followed by middleborns, firstborns and only children. Research limitations/implications Birth order affects managers' behaviors in decision-making and conflict situations. Relationship dynamics in sibships are reflected in organizational settings, affecting how people behave in decision-making and conflict handling.

In 2010, David R. Rink conducted a study on the topic "The impact of birth order upon consumers' decision-making, buying, and post-purchase processes: a conceptualization. *Innovative Marketing*". After reviewing relevant portions of the literature, the author conceptualizes the impact of birth order upon consumers' decision-making, buying, and post-purchase processes. The topics of adopter categories and product life cycle are also incorporated. Marketing mix implications are interwoven throughout the discussion, which could benefit goods manufacturers, service providers, retailers, sales

managers and salespeople, advertisers and advertising agencies, product and brand managers, website developers, media planners, package designers, and social media managers, to name a few. In analysing the consumer decision process, five stages will be delineated: problem recognition, information search, alternative evaluation, purchase, and post purchase processes (Hawkins and Mothers Baugh, 2010). Given this condition of anxiety, first-born will tend to affiliate with other individuals (Jobert, 1990), especially ones older than themselves (Salmon and Daly, 1998), in this and subsequent stages of the decision process. They use this social comparison as a basis for self-evaluation, because first-born is less self-reliant. Later born, on the other hand, are able to handle the tension themselves as they tend to be independent and more confident (Rowe et al., 1992; Sulloway, 1996; Mock and Parker, 1998). They also empathize better and identify more with others who are experiencing stressful situations (e.g., emergency buying) (Vicente, 1983; Sulloway, 1995), because later-born tend to be more peer-oriented.

Method

Objectives

The major objectives of the study are:

1. To understand whether there is any significant difference in altruistic behaviour among siblings.
2. To understand whether there is any significant difference in the decision-making process among siblings.

3. To understand the relationship between altruism and the decision-making process among siblings.

Hypotheses

The hypothesis of the present study are:

- H01: There will be no significant difference in altruism among siblings.
- H02: There will be no significant difference in the decision-making process among siblings.
- H03: There will be no relationship between altruism and the decision-making process among siblings.

Variables

Altruism

Altruism is when we act to promote someone else's welfare, even at a risk or cost to ourselves.

Indecisiveness

Indecisiveness refers to the experience of decision problems (i.e., lack of information, valuation difficulty, and outcome uncertainty) resulting in overt choice-related behaviours such as delay, tunnel vision, and post-decision dysfunctional behaviour (e.g., worry).

Research design and Sample

The current study was conducted in the sample of 60 siblings between the age range of 15 to 28, who were with their family during pandemic lockdown.

Assessment tool

The current study used an Adapted from the Self-Report Altruism Scale (Rushton, 1981) by P. C. Rushton (original), Peter Witt and Chris Boleman (adapted version). This 14-item scale assesses intentions related to altruistic behaviours. A correlation of at least .80 is suggested for at least one type of reliability as evidence; however, standards range from .5 to .9 depending on the intended use and context of the instrument. The extent to which a measure captures what it is intended to measure. Scoring is done by summing up all item ratings together. A higher score indicates greater altruism.

Instrument: Adapted from the Self-Report Altruism Scale (Rushton, 1981) Scale/Subscale Name: Adapted Self-Report Altruism Scale.

Source: Cited and adapted by the CYFAR Life Skills Project, Youth Development Initiative, Texas A & M University.

Developers: P. C. Rushton (original), Peter Witt and Chris Boleman (adapted version)

Year: 1981 (original), 2009 (adapted)

Target Audience(s): Youth

Language other than English available: No

Type: Attitudes

Data collected: Quantitative

Data collection format: Self-report - Pre/post

Reading Level: Flesch-Kincaid Grade Level: 5.4

Existence of test/technical manuals, user guides, supplemental materials: None

Level of training necessary for administration/scoring/interpretation: None

Widespread Use/Professional Endorsements: Recommended by the CYFAR Life

Skills Project, Youth Development Initiative, Texas A&M University. The original instrument is widely used with adults and has a reliability of .84.

Cost of Use: No costs associated with the use of this instrument.

Description: This 14-item scale assesses intentions related to altruistic behaviour

CONSTRUCT: Altruism

Scale Name: Adapted Version of the Self-Report Altruism Scale

Developers: P. C. Rushton (original), Peter Witt and Chris Boleman (adapted version)

Scale:

0=Never

1=Once

2=More than once

3=Often

4=Very often

The current study adopted an indecisiveness scale (IS) by Randy O. Frost and Deanna L. Shows. The IS is a 15-item instrument designed to measure indecisiveness as a symptom of obsessive-compulsive disorder (OCD). The IS was developed in a series of several studies reported in the original article. All subjects were females and undergraduate college students. No other demographic data were provided. The sample for the first study was 112 subjects; for the second study, it was 52 subjects selected based on their extreme scores in the first study and for the third study 88 different female college students. No actual norms were provided in the original article. The IS is easily scored by reverse-scoring items 2, 3, 5, 6, 8, and 9, and then summing all item responses. The IS has very good internal consistency, with alphas of at least .87. No data on stability was provided. The IS has established good concurrent and discriminant validity.

AUTHORS: Randy O. Frost and Deanna L. Shows

DESCRIPTION: The IS is a 15-item instrument designed to measure indecisiveness as a symptom of obsessive-compulsive disorder (OCD). The concept of indecisiveness appears to be related to worries about making mistakes. Indecisiveness among individuals with OCD may also be seen as a product of the need to do things correctly so that unless actions are correct or mistake-free, people with OCD will hesitate to act (i.e., are indecisive). Thus, only if one's actions are perfect, that is, not subject to criticism from others, will engaging in the act be free from indecision. Some authors also see indecisiveness as a formal cognitive characteristic stemming from a problem with the structuring of input. Therefore, obsessive individuals may over-

structure information during input, impairing their ability to use the information and leading to uncertainty and problems with decision-making.

NORMS: The IS was developed in a series of several studies reported in the original article. All subjects were females and undergraduate college students. No other demographic data were provided. The sample for the first study was 112 subjects; for the second study, it was 52 subjects selected based on their extreme scores in the first study and for the third study 88 different female college students. No actual norms were provided in the original article.

SCORING: The IS is easily scored by reverse-scoring items 2,3,5,6,8, and 9, and then summing all item's responses.

RELIABILITY: The IS has very good internal consistency, with alphas of at least .87. No data on stability was provided.

VALIDITY: The IS has established good concurrent and discriminant validity.

Participants indicate on a 5-point Likert scale the extent to which they agree or disagree with the following statements. (1 = Strongly Disagree, 5 = Strongly agree).

Directions: The following is a measure of decision-making styles.

Inclusion criteria

Males and females having siblings. Age 15 years to 28 years of age.

Subjects who were present at their homes during lockdown.

Exclusion criteria

Single child.

Profile Sheet

The profile sheet was prepared online to obtain information about the participants regarding their name, age, gender and another demographic status.

Informed Consent

The informed content detailed the study, its title, purpose, procedures, risks and benefits. The participant was assured that the data collected would be kept strictly confidential and that it would be used for research purposes only. It was also made clear that the participant could withdraw from the study at any time.

Statistical analysis

A comprehensive statistical analysis was done using SPSS (version 26). Descriptive statistics is the branch of statistics that intends to describe a big chunk of data (using summary charts and tables, etc). Inferential statistics is the branch of statistics that is concerned with using probability concepts to deal with uncertainty in decision-making.

The descriptive statistical methods used in this study are arithmetic mean and standard deviation. A convenient sampling method was used in this research.

The inferential statistical methods used in this study are t-test and correlation.

Result and discussion

Table 1: Mean, t-value and p-value of altruistic behaviour patterns and decision-making process between elder and younger siblings.

Variables	Elder	Younger	t- value	p- value
	n=(30)	n=(30)		
	Mean	Mean		
Altruism	14.88	16.00	-1.022	0.310
Indecisiveness	28.83	29.93	-0.479	0.633

*p<0.05

Table 1 shows the mean, t-value and p-value of altruistic behaviour patterns and decision-making process between elder and younger siblings. The mean value obtained for altruism for elder and younger siblings is 14.88 and 16.00. T-test was done to find the significant difference in altruism between the two groups and the t-value obtained is -1.022 and the corresponding p-value is 0.310 respectively. This clearly shows there is no significant difference between the two groups of elder and younger siblings for altruism. From the result it can be concluded that younger siblings have greater altruism than elder siblings.

Altruism is the motivation to help others (Andreoni, 1989). A growing literature suggests that altruism is associated with age (for a review, see Bekkers & Wiepking, 2011). In cross-sectional studies, adult age shows positive linear relationships to subjective, behavioural,

and neural measures of altruism and prosocial behaviour (Freund & Blanchard-Fields, 2014; Hubbard, Harbaugh, Srivastava, Degras, & Mayr, 2016; Sparrow & Spaniol, 2018). However, in addition to expressing intrinsic value orientations, prosocial behaviour can also serve instrumental goals, such as fostering social relationships or maintaining a positive self-image (Taylor et al., 2000).

The mean value obtained for indecisiveness for elder and younger siblings is 28.83 and 29.93. T-test was done to find the significant difference in indecisiveness between the two groups the t-value obtained is -0.479 and the corresponding p-value is 0.633 respectively. This clearly shows there is no significant difference between the two groups of elder and younger siblings for indecisiveness. As we analyze the mean value, indecisiveness is higher in younger siblings than elder siblings. In 2022, Gentrit Berisha, Besnik A Krasniqi and Rrezon Lajçi conducted a study on the topic “Birth order revelations about managers” where it was concluded that lastborns and middleborns can work easier together, compared to other siblings, denoting their propensity for participatory decision making. Firstborns can play a dominant role in pressing for a solution when conflicts escalate and deteriorate performance and jeopardize organizational effectiveness, compared to other siblings. This is evidence that birth order influences how people exert their leadership roles (Hudson, 1990; Black, et al., 2018).

Table 2: Pearson Correlation between altruism and indecisiveness among siblings.

Variables	Indecisiveness
Altruism	-0.133

The Pearson correlation is -0.133 between altruism and indecisiveness among siblings. This shows that there is a negative correlation between altruism and indecisiveness among siblings at a 0.01 level of significance (99%). This shows that as altruism increases indecisiveness decreases and vice high altruism behaviour patterns may lead to a decreased decision-making process for one's own life and other responsibility.

A comprehensive analysis was done using SPSS (version 26). On analyzing the results insignificant findings were obtained. Findings suggest that there is no significant difference between the two groups of elder and younger siblings for altruism as well as there is no significant difference between the two groups of elder and younger siblings for indecisiveness. Further, the findings also suggest that the mean values for altruism is comparatively higher in younger siblings as well as mean values for the decision-making process is comparatively higher in younger siblings.

There is a negative correlation between altruism and indecisiveness among siblings. This shows that as altruism increases indecisiveness decreases and vice high altruism behaviour patterns

may lead to a decreased decision-making process for one's own life and other responsibility.

Implication

Altruism is acting to help someone else at some cost to oneself. Often, people behave altruistically when they see others in challenging circumstances and feel empathy and a desire to help. This behaviour pattern starts from our family lives so knowing about differences in altruistic behaviour patterns in siblings and people having one sibling and people having more than one could help shape their home environment in better ways and also promote such behaviour for all.

Ethical consideration

1. After being told all the relevant information about the study, they have given their consent to partake in the study.
2. The right to withdraw allows participants to stop and leave at any point in the study.
3. Ensuring that participants' personal details are kept anonymous and private throughout and after an experiment.

Limitations of the study

Following few limitations of the study are listed below:-

1. The data was collected from a large age variation group.
2. The results were limited to the data collected by the questionnaire method.

3. This study does not contain data from, interviews, groups, and panel discussions which can be supported to get more solid results.
4. The sample size was small for representation at a large scale.
5. The study contains only data using quantitative analysis.

Suggestions for further research

1. It is clear that there needs to be much more research in regard to sibling incest in order to understand the full dynamics and implications upon an individual.
2. The profound benefits of altruism in modern society are self-evident.
3. Such studies might help to know more about siblings' altruistic behaviour and decision-making process based on birth order.

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Structural and optical characterization of schiff base incorporated nano-TiO₂

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Abstract

In this study, the structural and optical characterization of schiff base incorporated nano titanium dioxide was conducted. A novel schiff base was synthesised by reacting salicyladehyde and ortho dianisidine. The synthesised schiff base was then incorporated with nano TiO₂ synthesized via hydrothermal method to form TiO₂/schiff base nanocomposite. The formation of schiff base and TiO₂/schiff base nanocomposite were structurally confirmed through fourier transform infrared spectroscopy (FT-IR). The optical properties of the synthesized TiO₂/schiff base composite were studied using UV-visible diffuse reflectance spectroscopy (UV-DRS) and photoluminescence spectroscopy (PL). The incorporation of Schiff base onto TiO₂ improved the visible light absorption and reduced the band gap of TiO₂.

Keywords: Schiff base, TiO₂, hydrothermal method, band gap

1. Introduction

In recent years, Schiff base complexes have ranked among the most extensively investigated coordination compounds due to their growing significance as biochemical, analytical, and antibacterial reagents [1]. Schiff bases are molecules that resemble aldehydes or

ketones but instead of having a carbonyl group, they have an imine or azomethine group [2]. Aliphatic aldehydes are unstable and easily polymerize, whereas, aromatic aldehydes, especially those with a strong conjugation system, generate stable schiff bases [2]. Primary amines condense with carbonyl compounds to form Schiff bases and are characterized as nitrogen analogues of an aldehyde or ketone in which the carbonyl group ($>\text{C} = \text{O}$) has been replaced by an imine or azomethine group [3].

The Schiff base compounds have strong biological activity because they contain imine ($>\text{C}=\text{N}$), hydroxyl, and different alkyl or alkoxy groups. The Schiff bases generated from different amines have been extensively studied and have uses in materials chemistry, industry, and catalytic reactions that mimic biological processes [4]. The utilisation of Schiff base metal complexes for a wide range of practical catalytic transformations is made possible by the ability of Schiff base ligands to coordinate a wide variety of metals and to stabilise them in a number of oxidation states [4]. They are excellent options for use in sensors, organic light-emitting diodes, and photovoltaic solar cells.

Nano semiconductor materials are extremely important for numerous technological applications owing to their optical and thermal characteristics [5]. In the world of nanotechnology, there has been a lot of interest in the creation of metal oxide nanoparticles with tunable properties for advanced applications. Titanium dioxide is a wide band gap n-type semiconductor material with versatile application because of its optical and electronic properties [6]. It is well-recognised for its potential applications in the field of photocatalysis and photo

electrochemistry. Earlier reports reveal that the most preponderant approaches to attain desired properties of TiO_2 is shape and morphology control, particle size control and band gap altering by incorporating foreign species as dopants [6]. Several different materials and reaction settings have been investigated in these efforts to improve the characteristics of TiO_2 . This work is focussed on the effect of Schiff base on the optical properties of nano TiO_2 .

2. Experimental section

2.1. Synthesis of schiff base using salicylaldehyde and o-dianisidine

Schiff base was prepared by allowing the reaction between o-dianisidine (0.01 M) and salicylaldehyde (0.02 M) in methanol. For this, salicylaldehyde in methanol was added drop wise to o-dianisidine in methanol with constant stirring using a magnetic stirrer and permit to react for 1 hour under room temperature. On completion, the solution become yellow coloured. Eventually, yellow needle like crystals were formed by the slow evaporation of methanol.

2.2. Synthesis of titanium dioxide nanoparticles

Titanium dioxide nanoparticles were prepared using hydrothermal method. To 5 ml of titanium (IV) isopropoxide, distilled water was added drop wise till precipitation is complete. The mixture is then stirred for about 1 hour using a magnetic stirrer. The obtained mixture is then transferred to teflon lined autoclave and then subjected to temperature of about 180°C for 2 hours. Filter the content using whatmann filter paper and then washed with acetone and water. The obtained powders were filtered, washed, and dried at 80°C .

2.3. Incorporation of schiff base on titanium dioxide

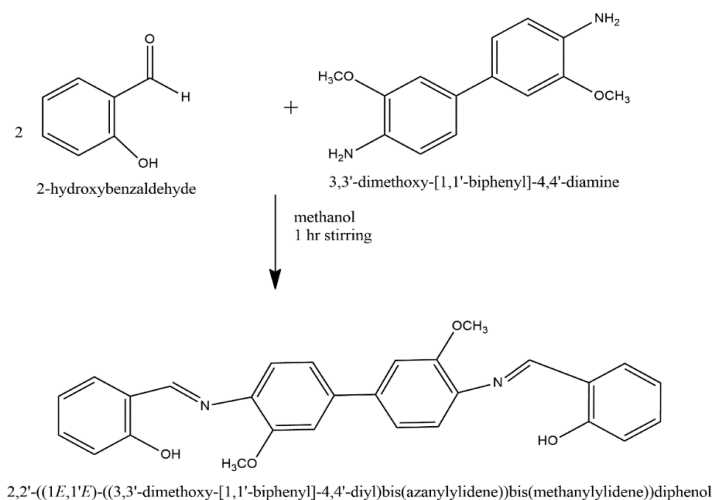
The incorporation of schiff base on titanium dioxide could be obtained by dispersing schiff base (4 ml of 10^{-3} M) to certain mass of TiO_2 (0.1 g). It was then followed by the addition of 10 ml methanol and stirred well for 60 min. to disperse schiff base uniformly on TiO_2 surface. The product was then dried and designated as TiO_2 /schiff base nanocomposite.

3. Characterizations

FT-IR spectra of samples were obtained on a Perkin Elmer spectrum two FT-IR spectrometer in the range, $4000\text{--}400\text{ cm}^{-1}$. The UV-DRS absorption spectra were recorded using Shimadzu UV-2600 spectrophotometer. The photoluminescence (PL) spectral measurements were made using Fluorolog Horiba spectrofluorometer.

4. Results and discussion

Scheme 1. depicts the formation of schiff base from the reaction between o-dianisidine and salicylaldehyde.



Scheme 1. Synthesis of Schiff base from o-dianisidine and salicylaldehyde

4.1. FT-IR analysis

The FT-IR spectrum of schiff base synthesized from salicylaldehyde and o-dianisidine is shown in Figure 1. The band observed at 2935 cm^{-1} can be assigned to the $\nu(\text{C-H})$ stretching. The azomethane group [$\nu(\text{CH=N})$] vibrations are shown at 1615 cm^{-1} and this confirms the formation of imine bond that is, the formation of schiff base. The peak at 1562 cm^{-1} corresponds to C=C stretch due to the aromatic moiety present in the schiff base. The characteristic peak corresponding to C=O stretching vibration in salicylaldehyde and asymmetric and symmetric stretching vibrations of NH_2 and N-H bending deformations in o-dianisidine are absent in the IR spectrum of the schiff base synthesized from salicylaldehyde and o-dianisidine because of the formation of imine bond. The band at 1028 cm^{-1} shows the O-CH_3 bending vibration of ortho dianisidine which remains unaffected in the case of synthesized schiff base also. The phenolic C-OH vibration observed at 1278 cm^{-1} in the case of salicylaldehyde remain as such in the case of synthesized schiff base. The peak at 1450 cm^{-1} shows the presence of C-H in-plane bending vibrations and bands observed in the range $800\text{-}950\text{ cm}^{-1}$ ($826, 906\text{ cm}^{-1}$) is due to C-H out of plane bending vibrations of o-dianisidine part of synthesised Schiff base.

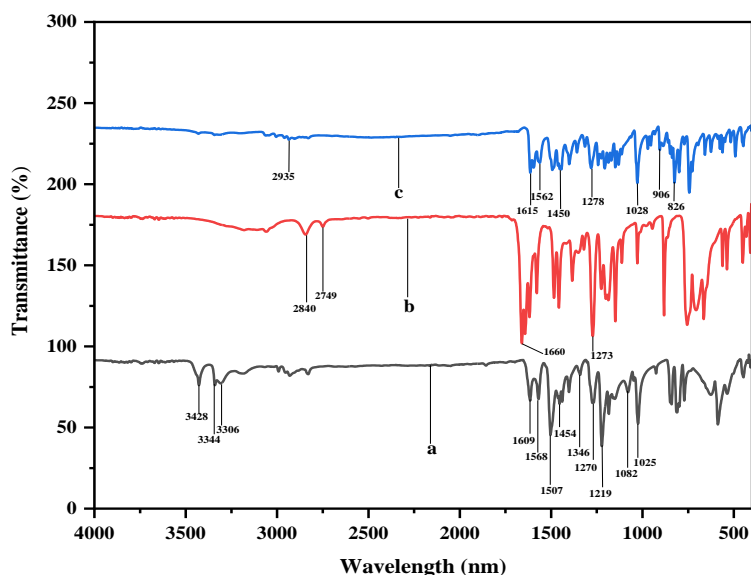


Figure 1: FT-IR of a) o-dianisidine, b) salicylaldehyde and c) schiff base

The FT-IR spectra of synthesized TiO_2 and TiO_2 /schiff base composite is shown in Figure 2. The absorption band in the range $3000\text{--}3600\text{ cm}^{-1}$ is due to the stretching vibration of the hydrogen-bonded OH groups, which is due to the presence of adsorbed water molecules. The band at around 1635 cm^{-1} is due to the bending vibration of water molecules. The broad bands below 950 cm^{-1} are characteristic vibrations of Ti-O-Ti network [6]. The bands at 531, 440 and 410 cm^{-1} belong to the Ti-O stretching mode of the anatase TiO_2 . But in the case of TiO_2 /schiff base composite, these peaks were blue

shifted to around 526 cm^{-1} , 423 cm^{-1} and 400 cm^{-1} . This is due to the interaction between Ti-O bond and schiff base molecule [7]. Comparing two spectra, new bands are found in TiO_2 /Schiff base composite in the range of $1300\text{--}1500\text{ cm}^{-1}$ due to C-OH stretching. Thus, the FT-IR results confirmed the successful incorporation of schiff base into titanium dioxide.

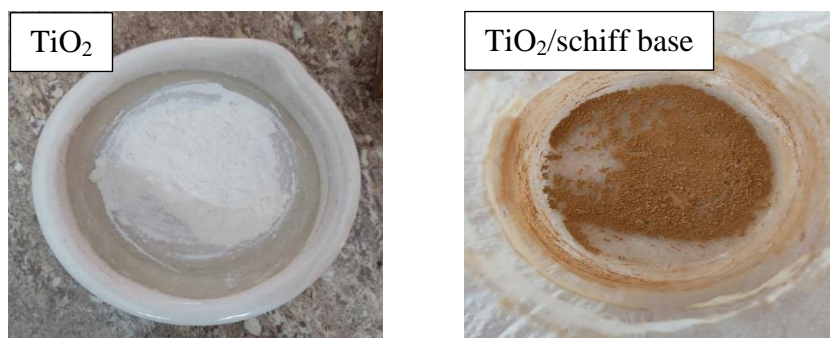
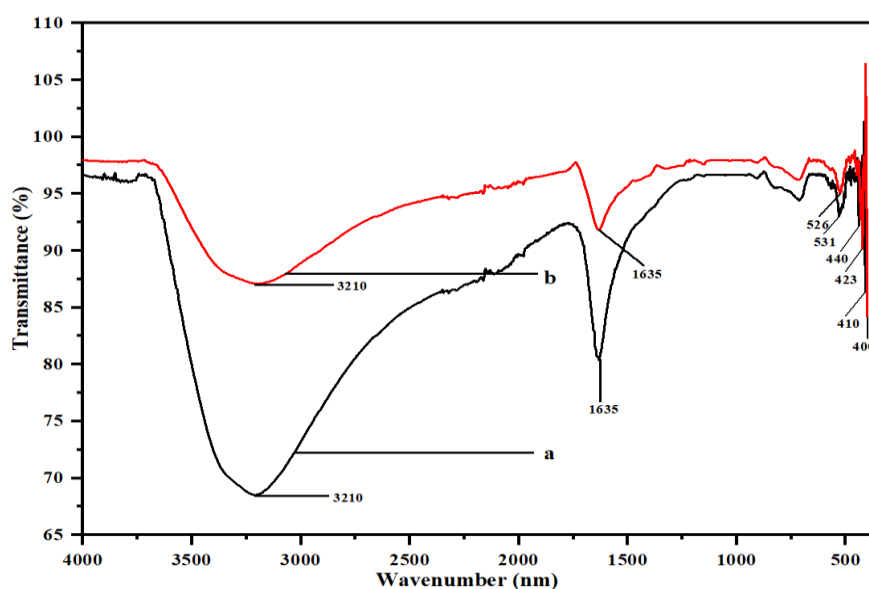


Figure 2: FT-IR spectra and corresponding photographs of a) TiO_2 and b) TiO_2 /schiff base nanocomposite

4.2. UV-DRS analysis

In order to investigate the role of schiff base on the optical absorption properties of TiO₂, the UV-visible diffuse reflectance spectra (UV-vis DRS) of TiO₂ and TiO₂/schiff base samples were performed in the wavelength range of 200-700 nm and the results are depicted in Figure 3. TiO₂ displayed an absorption edge at 387 nm which is in good agreement with the previous reports. From the Figure 3 it is evident that the absorption edges were extended to visible light range (406 nm) with the incorporation of schiff base into TiO₂ matrix. To validate the band gap variation upon the addition of schiff base to TiO₂, the band gap energy (E_g) of the synthesized material is calculated using the following equation:

$$E_g = 1239.8 / \lambda$$

where ' E_g ' is the band gap (eV) and ' λ ' (nm) is the wavelength of the absorption edges in the spectrum [8].

The band gap energy of synthesized TiO₂ and TiO₂/schiff base composite were calculated as 3.2 eV and 3.05 eV, respectively (Table 1). The band gap energy of TiO₂ was found to be reduced after the incorporation of schiff base. The lower band gap energy along with significant red shift of absorption edge in TiO₂/schiff base composite compared with TiO₂ may be beneficial for improving the visible light absorption.

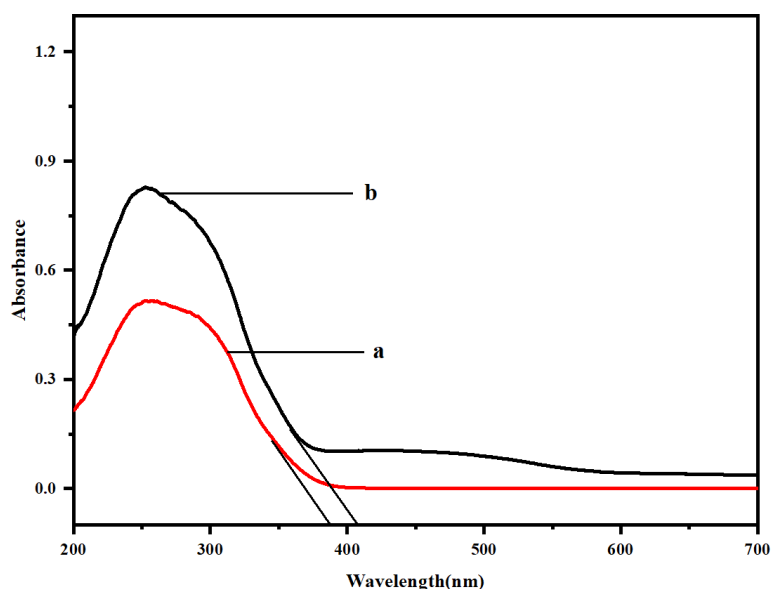


Figure 3: UV-DRS spectra of a) TiO₂ and b) TiO₂/schiff base nanocomposite

Table 1. Absorption edge and band gap values of the synthesized samples

Samples	Absorption edge (nm)	Band gap value (eV) obtained from $E_g = 1239.8/\lambda$
TiO ₂	387	3.2
TiO ₂ /schiff base nanocomposite	406	3.05

4.3. Photoluminescence analysis

The PL spectra of undoped TiO₂ and TiO₂/schiff base composite at an excitation wavelength of 300 nm are depicted in Figure 4. Titania exhibits strong structural emission band around 335 nm with broad band beyond 370 nm. The strong emission around 335 nm may be due

to the direct recombination between electrons in the conduction band and holes in the valence band [9,10]. The presence of broad emission peak in the visible region is due to the presence of defect levels below the conduction band and electronic transition takes place by defects levels such as oxygen vacancies in the band gap. It is seen that Schiff base incorporation increases the intensity of PL emission spectra of TiO_2 [11].

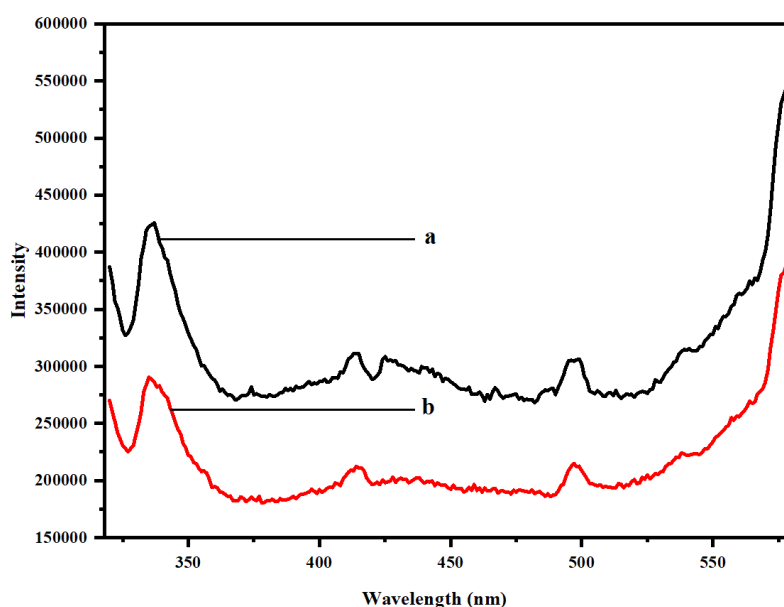


Figure 4: Photoluminescence spectra of a) $\text{TiO}_2/\text{schiff base}$ composite and b) TiO_2

4. Conclusion

In this study, a novel schiff base is synthesized by reacting salicylaldehyde and ortho dianisidine. The formation schiff base was identified by the development of a bright yellow coloured solution. The synthesized schiff base was then incorporated with TiO_2 to form $\text{TiO}_2/\text{schiff base}$ composite. The formation of schiff base and

TiO₂/schiff base composite are structurally confirmed through FT-IR spectroscopy. The optical properties of the synthesized TiO₂/schiff base composite were studied using UV-DRS spectroscopy and photoluminescence spectroscopy. The band gap energy of TiO₂ (3.2 eV) was found to be reduced to 3.05 eV upon schiff base incorporation. The lower band gap energy along with significant red shift of absorption edge in TiO₂/schiff base nanocomposites compared with TiO₂ may be beneficial for improving the visible light absorption.

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Parental Pressure on Achievement Motivation Among Higher Secondary Students

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Abstract

Everyone in the world may have different perspectives, wishes and needs. What happens if it is denied by the parents? The researcher aims to study the role of parental pressure on achievement motivation among higher students in Kannur district. For this a total of 10 higher secondary students of age 16 to 17 years consisting of 8 males and 2 females are taken as sample using convenience sampling method and telephonic interview. Qualitative research design was adopted for the purpose. In this research parental pressure was assessed by the semi structured interview using open ended questions. The open ended questions were prepared based on academic excellence, skill development, career exploration and on parental relationship. Data was analysed through thematic analysis technique of qualitative research. The main findings of the study was that less parental pressure enhances an individual's academic excellence, skill development, career exploration and thus results in a good parental relationship. The study showed that individuals who experience less parental pressure are likely to have more achievement motivation.

Keywords: Parental pressure, achievement motivation, higher secondary students.

Introduction

In the world everyone possesses different kinds of goals but it is not necessary that everyone should achieve their goals. What happens if it is reasoned by the parents. Nowadays the care given by the parents is increasing and they expect more from their children. This care sometimes may lead to pressures which may de-motivate the child in pursuing their goal or passion. According to Morin, "Identifying the talent and supporting their abilities helps students feel highly achievement motivated" (Morin, 2020).

According to Moneva and Moncada, "parental pressure is the drive that parents put on their children to achieve a goal" (Moneva & Moncada, 2020). According to Harter and Connell, "achievement motivation refers to the level of one's motivation to engage in particular behaviour, based on the interaction of such parameters as need for achievement, expectancy of success, and the incentive value of success" (Harter & Connell, 1984). In the academic perspective, almost all parents put pressure on children to get good scores, but when it becomes too much these pressures negatively affect the child. Students in higher secondary experiences pressure not only from parents but also from teachers. So handling these pressures may become difficult in the adolescent period as they go through various biological and psychological changes. According to National Crime Records Bureau (2009) "291 students, aged 14 or below committed suicide due to feelings of failure". This cause may be overcome when parents follow constructive methods to reduce children's stress and anxiety.

In the present scenario it is important to understand the role of parental pressure on academic excellence, skill development, career exploration and parental relationship because it affects students psychological well-being and also gives opportunity to make parents aware about how this pressure affects students.

Review of literature

Moneva and Moncada (2020) conducted a study and the results showed that too much pressure from the parents would lead to stressful life of the student's worst, it might lead to depression, Nagpal and Sinha (2016) found parental pressure negatively influence academic performance. Deb, Strodl, Sun (2015) found that stress was positively correlated with parental pressure and psychiatric problems, while examination related anxiety also was positively related to psychiatric problems. Sarma (2014) found that parental pressure predicted stress, stress predicted depression, and depression predicted suicidality.

The other research conducted by Martinez (2015) leads to the contradiction that in the case of children students of highly involved family members significantly outperformed those with family members who were not involved, Paul and Ngirande (2014) found that staying involved with their children's education parents do impact positively on the academic achievement of the student's. In the study conducted by Minj (1999) it was found that parents do play a vital role in providing their children value and skills essential to success in school and in later life, Akhtar and Aziz (2011) found that the parent's pressure has a positive effect on the academic achievement of Business administration students.

Method

The research conducted is qualitative research. For the current study, a convenient sampling technique was used. Adolescents in the age range of 16-17 years studying in various higher secondary schools in Kannur District, Kerala were participated. A total of 10 samples were collected out of which 8 were boys and 2 were girls, belonging to the rural population and urban population. The method used for data collection is an interview, which was carried out through telephones. Semi-structured interview is used for the study where the rest of the questions are asked based on the response of the interviewee. Questions are prepared on the basis of parental pressure on academic excellence, skill development and career exploration. In the study the students from both CBSE and HSS who are born in Kerala in the age group of 16 to 17 years are included and the students who has major mental and physical distress, who are orphan and above 17 years are excluded.

Objectives of the study

- To find out the role of parental pressure on achievement motivation among higher secondary students.
- To find out the role of parental pressure on academic excellence among higher secondary students.
- To find out the role of parental pressure on skill development among higher secondary students.
- To find out the role of parental pressure on career exploration among higher secondary students.

- To find out the role of parental pressure on parental relationship.

Result and discussion

In the present research the data suggests that less parental pressure enhances an individual's academic excellence, skill development, career exploration, and thus results in a good parental relationship. It was found that parents who put concern in improving their children's academic excellence, had positively led their studies, gave their children the opportunities to think about their future and also provided a pleasant atmosphere to study and encourage children in scoring and achieving their dreams. Thus ensures the child's mental and physical health.

Conclusion

Individuals who experience less parental pressure are likely to have more achievement motivation. The findings suggest that parents are concerned and provide a pleasant atmosphere to study which helps in improving children's academic excellence. Parents are supportive in their children's skill development and thus motivate and suggest children to achieve their dreams which help in career exploration. Parents always ensure their child's mental and physical health and do not cause any threats which negatively affect their child's mental and physical health, thus parental relationships are maintained positively.

The limitation of the study is, it was conducted with less sample and achievement motivation on children those who have no parents were not studied. Achievement motivation in children who study from hostels, apart from home surroundings are also not studied. In the

future there is a scope to study with more samples and can conduct quantitative study on the basis of this study and achievement motivation in children's those who have no parents can also be studied.

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Comparitive Study on Effect of Different Agro-Chemicals and Selected Detergent on the Pro-Metamorphic Tadpoles and the Mortality Rate

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Abstract

The present study was conducted to compare the different agrochemicals which include an insecticide (Ekalux), plant growth regulator (Tagpon-39), fungicide (Stancon), herbicide (Paraquat), and a detergent on pro-metamorphic tadpoles and the mortality rate. Tadpoles of GS-27 and GS-30 were treated with these chemicals through three different experiments. Tadpoles treated with insecticide were died within hours in the first two experiment and survived tadpoles in the third experiment were shows drastic metamorphic changes when compared to other agrochemicals. The tadpoles treated withdetergent had shown a decrease in the duration of metamorphosis, and formed juvenile froglet with some deformities.

Keywords: *Agrochemicals, pro-metamorphic tadpoles, GS (Gosner Stage), metamorphosis.*

Introduction

In most of the species of organism, the embryonic development leads to larval stages with some characteristic feature, entirely different from the adults. Most aquatic amphibians including frogs, hatches

from the eggs and spend their initial stage of their life as swimming larvae, after they metamorphosis into frogs, toads or salamanders. In the case of frogs, egg develops into a limb less larvae called tadpoles. Tadpoles have many anatomical and physiological adaptations that distinguish them from the adults. The fish like tadpoles are herbivorous. Use of different kind of agricultural chemicals and detergents affect directly or indirectly on the metamorphosis of tadpoles leads to deformities, decrease immunity, reproductive problems, abnormal limbs, reduced body size, and also increase the mortality rate during larval stage. Pesticides effects on amphibian larval development can be complex and cause immunosuppression, morphological and physiological changes and endocrine disruption, act as environmental stressors, reducing the time to metamorphosis and reducing the final size of the metamorphs. Paraquat and Amitraz are herbicides. Paraquat caused a high mortality rate in the tadpoles, decreased skin pigment and encephalomegaly. Amitraz cause edema in tadpoles during their metamorphosis [4]. The use of fungicides directly or indirectly affects the development of larval stages in frogs [2]. Chemicals present in detergents include Mg, Ca, Zn, Pd like heavy metals, phosphates, and oxygen reducing substances and these chemicals alter the normal duration of metamorphosis and increase the mortality rate of tadpoles. Most of the plant growth regulators decrease the duration of metamorphosis, increase the mortality rate and deformities in larvae and reduced size (Sakr & Somaya, 2012). High concentrations, formulation additives such as surfactants present in insecticide is hazard to aquatic life of tadpoles in shallow aquatic environments (Watkins et al., 1985).

Materials and Methodology

- Tadpoles: About 50 pre-metamorphic staged (GS 25) and 30 pro-metamorphic staged (GS 26) tadpoles were collected from an artificial pond during October, 2020.
- Chemicals used: insecticide (Ekalux), plant growth regulator (Tagpon-39), fungicide (Stancon), herbicide (Paraquat), and detergent (Ariel).

Animal collection and husbandry: about 50 pre-metamorphic staged tadpoles (GS 25), and 30 pro- metamorphic staged tadpoles (GS 26) were collected from an artificial pond near Kallara on 5th October 2020. The collected tadpoles were acclimatized in well water about 5 days. They were kept in different containers of 10L capacity and teared until reached into GS 27 and GS 30, well water was used for rearing and fed with boiled Amaranthus leaves. Water on the rearing containers were replaced on alternative days. Tadpoles with GS 25 reared into GS 27 within 10 days. Tadpoles with GS 26 reared into GS 30 within 7-8 days.

Treatment with chemicals: Here the tadpoles were exposed to the chemicals through three different experiments. In the first experiment six glass bowls of 2L capacity were fixed. To each bowl about 3 tadpoles of GS 27 and 2 tadpoles of GS 30 were transferred from the first group. Tadpoles in the first bowl were treated with 0.005mg/L detergent. Tadpoles in the second bowl were treated with 0.1mL/l Tagpon-39 and in the third bowl added 0.1mL/L Paraquat dichloride. Tadpoles in the fourth and fifth bowls were treated with 0.1mL/L Ekalux and 0.005mg/L Stancon respectively. Tadpoles in the last bowl

were kept as normal. All these bowls were kept undisturbed and exposed to the chemicals for 24hrs, fed with boiled *Amaranthus* leaves and observed the changes. After 24hrs the water in the treated tadpoles were replaced with fresh water and fed with *Amaranthus* leaves. The changes were observed. In the second experiment six plastic containers of 10L capacity were fixed. To each bowl about 2 tadpoles of GS 27 and 2 tadpoles of GS 30 were transferred from the first group and added the same amount of chemicals per 5L well water and kept undisturbed for 12hrs, and then replaced with fresh water. In the third experiment six plastic containers of 10L capacity were fixed. To each bowl about 2 tadpoles of GS 27 and 2 tadpoles of GS 30 were transferred from the first group and added the same amount of chemicals per 5L well water and kept undisturbed for 1hr, and then replaced with fresh water. The changes were observed.

Observation

The series of experiment had showed differential morphological changes and mortality rate with respect to the different concentration of chemicals and time of exposure.

Experiment no.1

CHEMICAL	OBSERVATION
Ekalux	All were died within 15 minutes and the body becomes swelled.
Tagpon-39	All were died within 1hr and the body was covered with a white colored mucus like substances.
Stancon	All were died within 24hrs and produced a powdered substance from the body.

Paraquat	Three died after 24hrs, bend tail, and head region swelled. The remaining two were died after 26hrs.
Detergent	Early metamorphosis (metamorphosis completed with 25-36 days from the date of exposure to chemical). Tail was not completely resorbed and tail stub was remaining after metamorphosis. Thin forelimb and hindlimb and fingers were not paddle shaped. Light pigmentation after metamorphosis.
Control	Normal metamorphosis (completed within 36-46 days from the date of experiment). Normal resorption of tail and tail stub disappeared completely. Dark pigmentation. Hindlimbs and forelimbs were completely developed.

Experiment no.2

Chemicals	Observation
Ekalux	All were died after 3hrs, body shrink.
Tagpon-39	All were died after 10hrs.
Stancon	All were died after 24hrs, head region swelled.
Paraquat	1 died after 24hrs, remaining tadpoles were swims actively, fed well. One of the remaining 3 died after 40hrs, 2 shows low movement, body color turned to pale, died after 72hrs.
Detergent	Body color turned to pale day by day. 1 completed its metamorphosis within 29 days and the remaining tadpoles completed metamorphosis within 38 days

	from the day of exposure. Body became dried, tail stub was remained and moderately developed limbs.
Control	2 completed metamorphosis within 38 days and remained 2 completed metamorphosis in 46 days. Tail was completely resorbed and cloaca was visible. Moist skin type and well-developed limbs.

Experiment no.3

Chemical	Observation
Ekalux	1 of the 4 died after 18hrs. One of the 3 shows well-developed hind limbs and forelimb bud were arose and in the case of 2 others, showed increase in the hindlimb bud, no decrease in the length of tail. One of the 3 died after 2 days and the 2 others showed low movement and swollen body. Remained 2 tadpoles were died on the next day.
Tagpon-39	They were healthy in the 1 st day and showed drastic metamorphic changes within 3 days except one tadpole and that one showed low movement. They stop food intake and showed well-developed forelimbs and hindlimbs with paddle/webbed fingers. Body color turned into pale and all were died after 5 days.

Stancon	All were healthy in the 1 st day and 2 showed well-developed hind limbs and the remained 2 showed no changes. The 2 which showed metamorphic changes were died after 3 days. Remained 2 showed low movement and not intake food and one of them were died on the next day. The remained one were died after 8 days.
Paraquat	One of them died after one week. Two others survived for almost 14 days and one survives 14 days. Not showed any morphological changes.
Detergent	One of them completed metamorphosis within 20 days and the remained 3 took almost 39 days to complete their metamorphosis. Tail stub remained after metamorphosis. Their skin was dried than normal and well-developed limbs with webbed fingers.
Control	Completed metamorphosis within 38-46 days. Well-developed limbs with webbed fingers. Moist skin type, tail was completely resorbed and cloaca was visible.

Result and Discussion

The treatment of tadpoles with different doses of chemicals had caused biochemical alterations within tadpoles, which result in their morphological, anatomical changes and mortality. From the above observation it was concluded that tadpoles treated with Ekalux shows

high mortality rate and the tadpoles did not shown a complete metamorphosis. The second dangerous chemical is Tagpon-39, which also leads lethality of tadpoles within few hours/days after exposure, but in the last experiment they helped for drastic metamorphic changes. Stancon also increase mortality rate of tadpoles within a few hours/days after exposure. But the tadpoles were survived for a long time compared to the tadpoles treated with Ekalux and Tagpon-39. Finally, Paraquat shows less mortality rate compared to other chemicals. From this concluded that all chemicals affect the normal metamorphosis of tadpoles and increase the mortality rate in the tadpole stage.

When compared the metamorphosis of tadpoles with treatment of detergent and in normal condition, it shows that the tadpoles treated with detergent shows drastic metamorphic changes and less days to complete metamorphosis when compared to normal. They completed metamorphosis within 35days (average), almost 2 weeks before normal condition. Tadpoles treated with detergent shows dry skin and body color turned to pale from dark, deformed limbs with fingers, tail was not completely resorbed, tailstub remains after metamorphosis, cloaca was not completely visible when compared to control.

Paraquat and Amitraz are herbicides. Paraquat caused a high mortality rate in the tadpoles, whereas the metabolite of Amitraz was not fatal to the tadpoles at any dose. Amitraz cause edema in tadpoles during their metamorphosis and Paraquat cause decreased skin pigment and encephalomegaly[4]. Exposure to environmentally relevant concentration of insecticide, Endosulfan (ranging from 0.005 to 0.05

mg/L) may negatively affect survival, growth, development, and metamorphosis and also cause behavioral and morphological alterations, which is an agreement with previous studies on amphibians [1]. Multiple factors contribute to the declining of tadpoles, including chemical contaminants and emergent diseases. In recent years, agrochemical use, especially fungicide applications, has increased considerably [2]. There was no death in the control group, which meant that all the tadpoles survived, and all the experimental groups of different concentrations with detergent contain chlorine died at day 2. It showed that the tadpoles were placed in great stress by the experimental groups unlike the in the control group because the tadpoles could not adapt to the foreign environments [3]. The experimental results had showed that out of 200 eggs 47.5% were hatched in the control group and 76.5% were hatched in the gibberellin-A₃ treated group. The average duration of metamorphosis was 60 days and 52 days in the control and treated respectively. There was an increase in the total length of the hind limbs of the treated tadpoles as compared with the control throughout the experiment period [5].

Conclusion

Tadpoles are declining alarmingly globally, this is due to different reasons include environmental changes, predation, hunting, loss of habit etc. From the experiment and observation, it is concluded that the use of Ekalux increases the mortality rate and inhibit the normal metamorphosis of tadpoles. Then the second most dangerous agrochemical is Tagpon39, which also leads lethality of tadpoles, and prevent the normal metamorphosis of tadpoles. The Stancon, and

Paraquat is in the third and fourth position in agrochemicals. In the case of detergents, they decrease the duration by almost 2 weeks compared to control, and the juvenile froglets with abnormal limbs and fingers, pale body color, dry skin, and remaining of tail or tail stub after complete metamorphosis. All these indicates that the use of these kind of chemicals inhibit the normal metamorphosis of tadpoles, and increases the mortality rate.

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Sleep Quality, Happiness and Mental Well-Being among Emerging Adults

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Abstract

The quality of our sleep has a significant impact on our psychological well-being as well as our happiness. The purpose of the study was to find the relationship between sleep quality, happiness, and psychological well-being among emerging adults, and to determine the gender with respect to sleep quality, happiness, and mental well-being. A total sample of 150 emerging adults including 75 males and 75 females were selected using the purposive sampling from the state of Punjab. Sleep quality was assessed using the Sleep Quality Scale (SQS), happiness was assessed using the Oxford Happiness Questionnaire (OHQ developed by Michael Argyle and Peter Hills in 2002, and psychological well-being was assessed using 'The WHO-5 well-being index developed in 1998 by Psychiatric Research Unit. The correlation was examined using Pearson's correlation coefficient and the significant difference was determined using the t-test. The results show that there is a significant correlation between sleep quality, happiness, and psychological wellbeing among emerging adults, and there is no significant difference in gender on sleep quality, happiness, and psychological wellbeing among emerging adults. The findings imply that further study should be conducted on other demographic aspects of emerging adults using variables other than used in the current research

Keywords: Sleep quality, happiness, Psychological wellbeing, emerging adults.

Introduction

Deprivation of sleep has always been linked to poor physical and mental health. A considerable amount of studies have been carried out by many researchers on Sleep, happiness, and mental well-being. One of the well-known Irish proverbs says that 'A good laugh and a long sleep are two best cures for anything.' It's been proven true that sleep can be an effective treatment to improve our memory, enhance our concentration, strengthen our immune system, and makes us physically and mentally fit. When we consider most mental disorders, one of the most common symptoms is sleeping disorders. In other words, sleep is considered to have a bidirectional relationship with mental health. Trouble sleeping can lead to mental issues. (Scot, Webb & Rowse, 2017) Nowadays, nighttime smart phone use is on the rise, and staying up late is a growing trend. This results in less time spent sleeping, which might make someone grumpy the next day. The effectiveness of sleep is impacted by smart phone use. When a person is sleep deprived, he or she does not have a strong attention span and is unable to concentrate on anything. This causes a student to underperform in class and makes an employee less productive.

Current studies state that mental health and mental illness are two opposite poles of a continuum (Scheid and Brown, 2010). Mental health is not just a state without any disorders rather it is a state of well-being in which a person understands his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to contribute to his or her community (World Health Organization, 2008).

Though there is also no one obvious definition for well-being, it can be considered from two perspectives. They are subjective well-being (SWB) and psychological well-being (PWB). Subjective well-being is mainly about the hedonic perspectives of pleasure and about the beliefs of people that they lead a desirable and rewarding life (Diener, 2012). Subjective wellbeing is highly associated with and is a synonym for positive emotions. Whereas psychological well-being is mainly based on the views of Aristotle which he calls eudemonia, which is self-realization and considered the ultimate goal of humans, and superior to all other goals (Diener et al. 1998). Low levels of mental disorders are always referred to high levels of mental well-being and a greater level of mental illness leads to poor well-being (Keyes and Lopez, 2002).

We can define happiness as a positive state of mind with feelings of joy, satisfaction, contentment, and fulfillment. Throughout human history, it is shown to be one of the most important goals of a person's life (Compton, 2005). There is a higher chance of achieving success for a 10 person who experiences happiness than for a person who experiences negative emotions (Lyubomirsky, King, & Diener, 2005) A person can be happy by keeping a positive attitude about the things around them (Carver, & Scheier, 2002)

Gender disparities do exist due to psychological and biological differences. Males and females can have varying levels of life satisfaction. Different results may result from these distinctions when they interact with the organizational environment or circumstances. (Koker (1991) and (Wood, Rhode& Whelan, 1989)

This study aims to focus on the emerging adults of Punjab. The people of Punjab are well known in India for their health consciousness and their traditional practices however there has been a change in lifestyle in the last decades due to the technological advances and the modernization. Most of the youngsters now try to adapt western culture. As a result there have been a lot of changes in the lifestyle including in sleep patterns of the people of Punjab.

It has long been assumed that mental well-being is connected to happiness and the quality of sleep linked to health. Studies have shown that poor sleep quality can lead to issues in physical and mental health. When a person is not mentally and physically healthy he or she may find it hard to be happy. And most of the mental health problems start with a state of unhappiness. Therefore this research is aimed to find out the relationship between the quality of sleep, happiness and mental well-being among the adults.

Review of literature

In the field of psychology there have been a lot of researches carried out on sleep, happiness and mental well-being. However there are only a few studies which examine the relationship between sleep, happiness and mental well-being. Insufficient sleep is often linked to poor health and poor health leads to the state of unhappiness.

A study was done in china by Zhai et al (2018) among 2495 full-time final year undergraduate students to find out the role of sleep in the psychological well-being using multivariable logistic regression by controlling the socio demographic factors such as age, gender, education, marital or relationship status, household conditions, place of

birth, study subjects and so on. K6 scale of mental well-being was chosen to assess the mental well-being and Pittsburgh Sleep Quality Index (PSQI) for the evaluation of sleep quality. The result of the study showed that there was a strong relationship between sleep quality and psychological well-being.

Otsuka, et al (2020) carried out a study to examine the relationship between subjective happiness and sleep problems in Japanese adolescents enrolled in junior and senior high schools in Japan. A questionnaire was employed to determine the prevalence of sleep problems (eg, insomnia, short sleep duration (SSD) and poor sleep quality and to assess the reported levels of subjective happiness. The study used Multivariable logistic regression analyses to assess the relationship between subjective happiness and sleep problems. There were 64,329 samples analyzed (age range 12-18 years, mean age 15.7 years, 53.9% male). The results indicated that reported levels of subjective happiness were strongly associated with the prevalence of sleep problems.

Kamkary (2012) studied the relationship between mental health and happiness in youth by using MMPI-2 and Happiness scale from sample of 15 to 29 years old youth. Findings showed a significant positive level between mental health and happiness. Another comparative study between athletes and non-athletes was conducted by Mostafai (2012) regarding mental health and happiness by using General Health Questionnaire (GHQ) and Happiness Inventory from 720 females. Result showed high level of happiness and mental well-

being among athletes while low level of mental health and happiness among non-athletes.

By these studies we can come to a conclusion that sleep is directly linked to our physical and mental health. A good quality makes us mentally, emotionally and physically healthy whereas a poor quality of sleep can lead to physical and mental illness. Therefore a person with poor quality of sleep can find it hard to experience mental wellbeing. Studies show that happy people report low level of mental illness symptoms. Therefore happiness can increase the mental and emotional well-being of a person, which is the most important factor for a healthy life.

Objectives

- To find the relationship between sleep, happiness and mental wellbeing
- To find out if there is any gender difference in sleep, happiness and mental wellbeing

Hypotheses

There is a significant relationship between sleep quality, happiness and mental wellbeing

There is no significant difference between sleep quality, happiness and well-being between males and females

Method

This study aimed to investigate the relationship and significant difference in the quality of sleep, happiness and mental wellbeing with respect to gender among the emerging adults of Punjab. Descriptive

research design was adopted .A total of 150 samples were collected using purposive sampling method.75 females and males were included out of which 66 were employed and 84 were unemployed. Measures used were Sleep Quality Scale (SQS), a self-rated scale with 28 items, and it assesses six areas of sleep quality: daytime symptoms, restoration after sleep, problems initiating and maintaining sleep, difficulty waking, and sleep satisfaction with test-retest reliability of .81. The Oxford Happiness Questionnaire assesses the personal happiness developed by Michael Argyle and Peter Hills at Oxford University in 2002. This contains 29 items and its Cronbach's alpha score is .91. The WHO-5 Well-Being Index developed in the year 1998 includes five items, which respondents rate according to the scale ranging 0-5 in relation to the past two weeks. (5= All of the time, 4= Most of the time, 3= More than half of the time, 2= Less than half of the time, 1= some of the time) the total raw score ranges from 0 to 25 which is multiplied by 4 to get the final score. The score 100 indicates a higher well-being whereas the score 0 indicates the worst well-being. Pearson's correlation coefficient was used to assess the relationship between variables and t- tests was used to find the significant difference with respect to gender and employability.

Result and discussion

Table 1 shows a correlation between sleep quality, happiness, and mental health

Variables	N	1	2	3
Sleep quality (1)	150	1	-.717**	-.692**
Happiness (2)	150		1	.750**
Mental health (3)	150			1

**Significant difference at the 0.01 level

Table 1 shows the correlation between sleep quality, happiness, and mental health in 150 emerging adults'. The correlation between sleep quality and happiness is -.717 which is significant at .01 level. The correlation between happiness and mental health is .750 which is also significant at .01 levels. The correlation between sleep quality and mental health is -.692, significant at .01 level.

Hence it's been found a significant positive correlation between happiness and mental health. Whereas there is a significant negative correlation between sleep quality and happiness as well as sleep quality and mental health, hence the hypothesis is accepted as there is significant correlation between sleep quality, happiness, and mental health.

Table 2 shows mean, SD and t value of Sleep quality, happiness and mental health among females and males.

Variables	Gender	N	Mean	SD	t- value	Significance
Sleep quality	Females	75	57.50	20.21	.61	.54
	Males	75	55.73	19.27		
Happiness	Females	75	3.59	1.47	.46	.65
	Males	75	3.48	1.36		
Mental Health	Females	75	15.45	4.69	.19	.84
	Males	75	15.60	4.52		

Table 2 shows mean, SD and t value of Sleep quality, happiness and mental health among females and males. The mean sleep quality for female and male are 57.70 and 55.73 respectively. And the standard deviation is found to be 20.21 and 19.27 for females and males respectively. The t- value is .61 which has a significance of .54. The mean happiness for female and male are 3.59 and 3.48 respectively. And the standard deviation is found to be 1.47 and 1.36 for females and males respectively. The t- value is .46 which has a significance of .65. The mean scores of the mental health for female and male are 15.45 and 15.60 respectively. And the standard deviation is found to be 4.69 and 4.52 for females and males respectively. The t- value is .19. which is significant at .84. Since none of the t-value is significant at .05 level. The hypothesis; “There is no significant difference between sleep quality, happiness and well-being between males and females” is

accepted. It implies that females and males do not differ in terms of their mental health, happiness and well-being.

Numerous studies have looked at how gender affects concerns with sleeplessness and other health (Zeng et al, 2020). The outcomes of gender disparities in investigations of the prevalence of insomnia have been conflicting. According to various researches, women experience insomnia more frequently than males, however other studies showed the exact reverse. Previous researchers have also shown that gender and subjective well-being are associated, with women often reporting higher levels of happiness than males. For instance, women performed significantly better than men on happiness measures in a sample of 600 Taiwanese Chinese (Yue et al, 2017). Psychological distress, anxiety, and depression all showed gender variations, with girls reporting considerably higher ratings than males (Van Droogenbroeck, Spruyt, & Keppens, 2018). The current study is in contrast with the existing research findings which shows gender difference in mental health, happiness and sleep quality.

Conclusion

This study aimed to find the relationship between sleep, happiness, and mental health as well as the genders difference in these three variables. Despite the association between sleep, happiness, and mental health the findings revealed that there is no significant difference in sleep, happiness and mental health with respect to gender. The study found a significant positive correlation between happiness and mental health. Whereas there was a significant negative correlation

between sleep quality and happiness as well as sleep quality and mental health.

The major limitations of the present research is that it focused only on the emerging adults of age group of 18 – 29 years from rural area of one district in the state of Punjab. The study also limited to two genders. Also the study does not take into account the hedonic aspect of wellbeing, which includes pleasure and happiness.

The future scope of the study includes extended the scope by considering other age groups and other socio-demographic variables like employability, age group, other genders etc. Very few studies have focused on the impact of sleep on work performance among college students. The relationship of culture and personality traits and well-being is also a research area to explore. Similar variables with different research design can be adopted to get more conclusive results.

Implications of research for practice

Sleep is a fundamental necessity for a human being to maintain his or her bio-psycho-social and cultural functions, and it is strongly tied to health and quality of life. The efficiency of sleep has been linked to recuperation, processing cognitively, and memory integration in several studies Fulgini and Hardway (2006) discovered that less sleep was linked to emotions that were both more negative and less positive. It has been shown that getting enough sleep can help us retain information better, concentrate better, build immune systems, and maintain a healthy physical and mental state. Sleep disturbances are among the most prevalent symptoms of the majority of mental illnesses. In other words, it is believed that sleep and mental health are

inversely related. Mental problems might result from sleep problems (Harvey, 2001).

Numerous studies have demonstrated that aspirations in a variety of areas, such as physical health and mental delight as well as peaceful interpersonal relationships and professional success are all correlated with happiness (Cohn et al.2009).

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Mobile Agents in Software Agents

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Abstract

Since the arrival of the World-Wide Web, and the explosive growth of information on the Web, researchers in the field of Software Agents got interested in information agents (also known as Internet agents). However, for the past couple of years, agent technology has been a hot topic, and most likely, this is mainly due to the popularity of the Java programming language, which represents an ideal language for implementing software agents as it is the “Write Once Run Anywhere” language. This is an important feature for software agents as it allows them to run on all platforms of the Internet. The word “agent” however, has been misused. People involved in agent research have a variety of definitions for that word. This paper presents a brief overview of software agents, with emphasis on mobile agents. We classify agents in different types along several primary characteristics that agents should exhibit.

1 Introduction

Based on the above discussion, an agent can be defined, along with its characteristics as follow:

“An agent is an entity that:

- acts on behalf of others in an autonomous fashion

- performs its actions in some level of proactivity and reactivity
- exhibits some levels of the key attributes of learning, co-operation, and mobility.”

But what exactly is a software agent and how does it differ from a software object? You may think of a software agent as one (or more) software object(s) that conforms to the above characteristics of agents and can be described as inhabiting computers and networks, assisting users with computer-based tasks. It is the responsibility of the programmer, however, to determine what an agent can do, as well as the information required from the user or software to have an agent performs its actions in a reactive manner. The behavior of the agent can be set by another software, which you can think of as a sort of a super agent that forks (or clones) new agents when a task requires extra help.

2 Classifications of Software Agents:



Classification refers to the study of types and entities. There are several dimensions to classify existing software

agents. They can be classified according to: the tasks they perform; their control architecture; the range and effectiveness of their actions; the range of sensitivity of their senses; or how much internal state they possess. In this paper we classify agents, along several ideal and primary characteristics that agents should exhibit. We identify three characteristics: autonomy, learning, and cooperation, which we have discussed in Section 1. Let us start by elaborating a bit more on these

characteristics. Autonomy refers to the characteristic that an agent can operate on its own without the need for human guidance. In other words, an agent has a set of internal states and goals. It acts in such a manner to meet its goals on behalf of the user. In order to do so, an agent has to be proactive in the sense that it has the ability to take the initiative rather than acting simply in response to its environment. Cooperation with other agents is necessary to accomplish a complicated task. In order to cooperate however, an agent must possess a social ability that allows it to interact with other agents. Finally, an agent is intelligent if it is able to learn and sense as it acts and reacts to its external environment. These three characteristics of agents are used to derive some types of agents to include in our classification as shown in Figure 1.

2.1 Collaborative Agents:

As the proliferation of computer communication networks was a big step toward the development of “virtual societies”. Collaboration between individuals (in the virtual society) requires that communication links be established and used effectively.

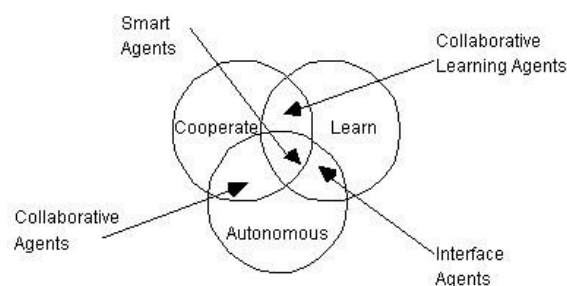


Figure 1: A partial view of agent classification

Distributed Artificial Intelligence, which is a subfield of Artificial Intelligence, is concerned with a virtual society of problem solvers (agents) interacting to solve a common problem. The goal of collaborative agents is to interconnect separately developed collaborative agents, thus enabling the ensemble to function beyond the capabilities of any of its members. Implementing efficient ways of cooperation among agents is actually one of the central issues for Multi-Agent Systems development. One of the motivations for having collaborative agents is to provide solutions to inherently distributed problems, such as distributed sensor network, or air traffic control.

2.2 Information Agents:

The explosive growth of information on the Word-Wide Web has given a rise to information agents (also known as Internet agents) in the hope that these agents will be able to help us manage, manipulate, or collate information from many distributed resources . One may notice however, that information agents seem a bit similar to interface agents. However, it is important to note that not all types of agents discussed here started at the same time. So, with the explosive growth of information, and the need for tools to manage such information, one would expect a degree of overlap between the goals of some agents. One distinction between interface and information agents, however, is that information agents are defined by what they do, in contrast to interface agents which are defined by what they are. There are some interface agents, developed at MIT Media Lab, that have been deployed for Web-based roles, and hence they can be considered as information agents. One important characteristic of Information Agents

is that they may be static or mobile. Information agents are most useful on the Web where they can help us with mundane tasks. For example, we carry out actions that may consume long time (e.g. searching the Web for information). Why does not the computer (e.g. an information agent) carry out such tasks for us and later on present us with the results?

2.3 Hybrid Agents:

Hybrid Agents refer to those agents whose constitution is a combination of two or more agent philosophies within a singular agent. These philosophies may be mobile, interface, information, collaborative. The goal of having hybrid agents is the notion that the benefits accrued from having the combination of philosophies within a single agent is greater than the gains obtained from the same agent based on a singular philosophy. An example of this is collaborative interface agents.

2.4 Mobile Agents:

A software agent is a mobile software agent if it is able to migrate from host to host to work in a heterogeneous network environment. This means we must also consider the software environment in which mobile agents exist. This is called the mobile agent environment, which is a software system distributed over a network of heterogeneous computers and its primary task is to provide an environment in which mobile agents can run. Note that not only an agent transports itself, but also its state. When it reaches the new host, the agent should be able to perform appropriately in the new environment.

2.4.1 A new Paradigm for Distributed Computing:

The central principle of today's distributed programming is remote procedure calling (RPC). The RPC approach, which was conceived in the 1970s, views computer-to-computer communication as enabling one computer to call a procedure in another. In RPC, all messages go through the network. Each either requests or acknowledges a procedure's actions. This approach, however, has its own limitations. Most notably, all interactions between the client and server must go through the network as shown in Figure 2.

Computing Paradigm:

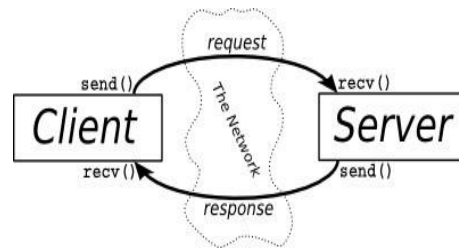


Figure 2: RPC-based Client/Server

Another approach that is forming a new paradigm of distributed computing is one that employs mobile agents. Initially this approach was known as Remote Programming. The Remote Programming approach views computer-to-computer communication as one computer not only to call procedures in another, but also to supply the procedures to be performed. Each message that goes through the network comprises a procedure that the receiving computer is to perform and data that are its arguments. The procedure and its state are termed a mobile agent as they represent the sending computer even while they are in the receiving computer in figure.

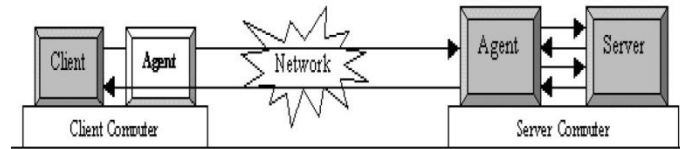


Figure 3: mobile agents-based computing paradigm

This approach is attractive since the reliability of the network is not crucial for the following reasons:

- Mobile agents do not consume much network bandwidth. They only consume bandwidth when they move.
- They continue to execute after they move, even if they lose network connectivity with their creators.

Therefore, if a client requires extensive communications with a particular server somewhere on the network, then implementing such a system using mobile agents is attractive. This is due to the fact that an agent can move closer to the remote server, reducing the network traffic, performs all tasks and comes back. During that period the client machine does not have to be switched on. It will have to be switched on only when it is time to welcome back the agent.

2.4.2 Applications of Mobile Agents:

An attractive area to use mobile agents is in processing data over unreliable networks. In such networks, the low-reliability network can be used to transfer agents, rather than a chunk of data, from place to place. In this paradigm, the agent travels to the nodes on the network, process the information on those nodes (without the risk of network disconnection) and then return home. Another interesting area that is

attracting lots of attention is electronic commerce. For example, instead of spending a huge amount of time going through on-line bookstores to find the best deal on a book, firing up an agent to do this task would save us a considerable amount of time. The agent would be programmed to visit a number of bookstores and find the best deals on books we need. Another interesting area of applications for mobile agents is in network management. In today's heterogeneous network environments, network operators are required to have extensive knowledge of the diverse networks in order to manage them. Such management requires the collection of large amount of data from nodes on the network. Mobile agents represent an ideal tool for collecting the data and analysing it.

3 Conclusion

Agent technology is a hot topic that is keeping many people both, in academia and industry quite busy. In this paper we have given a brief overview of software agents and their applications. We explained the characteristics of an agent and based on that we classified agents into six types: interface, collaborative, information, reactive, hybrid, and mobile. The mobile agent class was discussed in more details than any other class. This is because a useful mobile agent is inherently an information agent and should be collaborative and reactive. In other words, a mobile agent is different from a mobile object since the mobile agent has to exhibit some attributes of agency (e.g. autonomy, learning, co-operation, proactivity and reactivity).

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A Study on the Role and Effectiveness of Kerala Social Security Mission with Special Reference to Kottayam Town, Kerala

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Abstract

Social security is a concept as well as a system. Basically it is a system of protection of individuals who are in need of such protection in contingencies like retirement, old age, sickness, disablement etc. The concept of social security is based on ideas of human dignity and social justice. Kerala Social Security mission organised under social Justice Department has a mission to extend services and financial assistance to the destitute, poor, aged, children, women, chronically ill, cancer patients and other weaker sections of population. Kerala Social Security mission identifies undertake implement social security project for the weaker sections. Mission is constantly working to identify the weaker section that are striving to recoup with their advancing world and was efficiently and effectively functioning to retain their status in the society the present study in an attempt to examine the extent to which the scheme has delivered. And it focuses on the role of Kerala Social Security Mission in organizing social security programmes all over the state to extend services and financial support to the economically backward sector people which deserve and demand financial aid.

Keywords: Social Security, Contingencies, Financial Support, Human Dignity.

1.1 Introduction

Social security is a concept as well as a system. Basically it is a system of protection of individuals who are in need of such protection in contingencies like retirement, resignation, death, disablement etc. State, as an agent of the society, has an important mandate to provide a protective cover to the poor, the weak, the deprived and the disadvantaged. Kerala Social Security Mission (KSSM), organized under Social Justice Department, has a mission to extend service and support to the destitute, poor, aged, children, women, chronically ill cancer patients and other weaker sections of population. Kerala Social security mission identifies, undertakes and implements social security projects for the weaker sections.

1.2 Literature Review

1. **N. Karunakaran and Shilpa:** (2020) conduct a study on “Effect of social security or protection and occupational pensions in Kerala”. The study analysed the social protection and occupational pensions schemes and its effectiveness in the rural households of Kerala. The study reveals that Kerala had several achievements in introducing social protection measures to the vulnerable group and known for its widespread and popular social security schemes especially for the aged. The study concludes that pension are essential to ensure right, dignity and income security for older persons. Provision of economic security to aged is the main challenge faced by the state in present century. This draws attention to raise the social security amount without creating fiscal burden to government. Hence policies are

needed to ensure and satisfy social, financial and emotional need of elderly.

2. **S Mohanan Pillai (2018)** conducted a study on "Social security for workers in unorganized sector: experience of Kerala. The study points out that in recent years, the Kerala government has initiated several measures to provide social security to workers in a wide range of activity in the unorganized sector, welfare fund has been created and are administrated by the statutory welfare fund board. The article examines the function of one of the oldest schemes. The study concluded that the examination of formal social security to the weaker section of the society would serve as a suitable alternative measures of poverty alleviation and financial assistance to backward economies.

1.3 Objectives of the Study

1. To assess the satisfaction level and examine whether there is any increase in standard of living of KSSM beneficiaries.
2. To find out problems and challenges faced by KSSM beneficiaries.

2. Research Methodology

The study adopted both descriptive and exploratory research methods. Data extraction from the beneficiaries of Kerala social security mission in Kottayam town is collected through a structured questionnaire method.

2.1 Population

The population of the study include the beneficiaries of Kerala Social Security mission in Aymanam panchayat.

2.2 Sample size

The sample is collected from 60 respondents.

3. Data Analysis and Intrepretation

1. To assess the satisfaction level and examine whether there is any increase in standard of living of KSSM beneficiaries.
2. Level of satisfaction of KSSM beneficiaries under senior citizens

Table No. 3.1(a)

(a) Senior citizens

Measuring variable	Highly satisfied	Satisfied	No. opinion	Dissatisfied	Highly dissatisfied	Total score
Financial support	6	43	8	3	0	52
Care and home treatment	12	33	8	6	1	49
Availability of medicine	9	40	5	5	1	51
Nursing staff and care giving staff	13	36	9	1	1	59

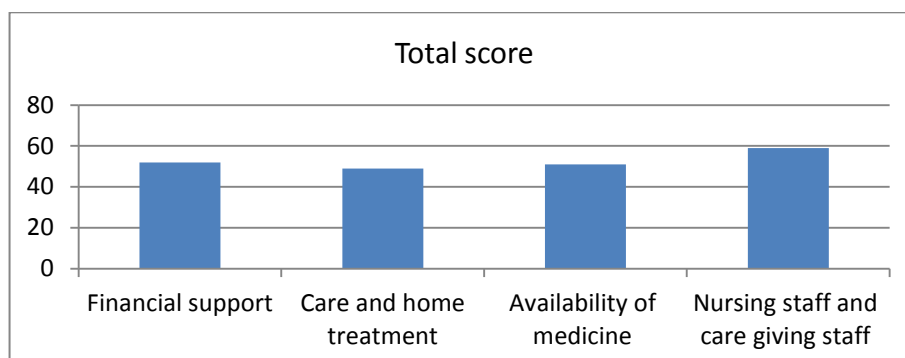
Source: Primary data

Interpretation

The above table shows the satisfaction level of KSSM beneficiaries under senior citizens, majority of beneficiaries were satisfied with nursing staff and care giving staff with highest total score of 59. Lowest satisfaction level were on care and home treatment provided by KSSM with total score of 49. And availability of medicine and financial support provided by KSSM have the moderate level of satisfaction.

Figure No. 3.1(a)

Level of satisfaction of KSSM beneficiaries under senior citizens



Level of satisfaction of KSSM beneficiaries under children

Table No. 3.1(b)

(b) Children

Measuring variable	Highly satisfied	Satisfied	No. opinion	Dissatisfied	Highly dissatisfied	Total score
Financial support	12	18	28	2	0	40
Treatment free of cost at the designated hospital	16	10	32	2	0	40
Orphanage facility	3	18	36	3	0	21
Basic education facility	17	10	30	3	0	41
Nutrition food	18	10	31	1	0	36
Social protection	16	12	30	1	1	43
Golden standard for the holistic development of a child with hearing loss	7	7	43	2	1	19

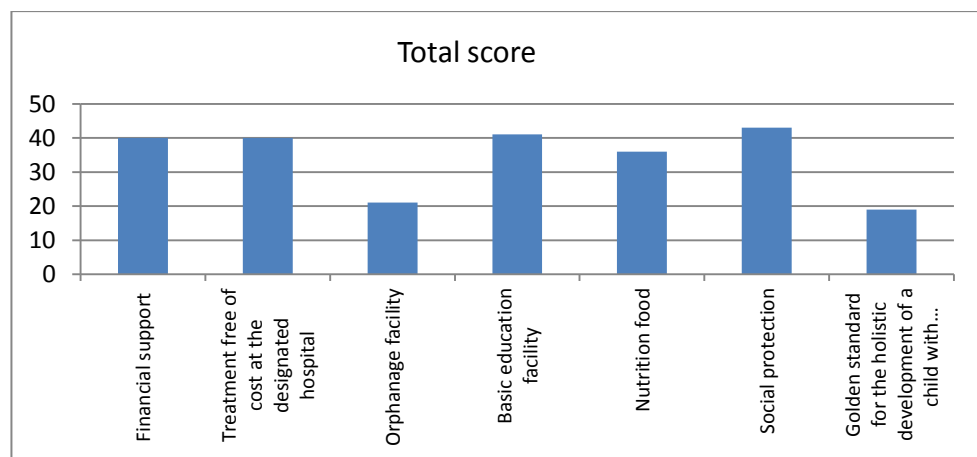
Source: Primary data

Interpretation

The above table shows the satisfaction level of KSSM beneficiaries under children, were majority of beneficiaries are satisfied with social protection provided by KSSM with total score of 43. It was followed by basic education, treatment free of cost at designated hospital and financial support provided by KSSM. Lowest satisfaction level on golden standard for the holistic development of a child with hearing loss.

Figure No. 3.1(b)

Level of satisfaction of KSSM beneficiaries under children



Level of satisfaction of KSSM beneficiaries under differently abled

Table No. 3.1(c)

(a) Differently abled

Measuring variable	Highly satisfied	Satisfied	No. opinion	Dissatisfied	Highly dissatisfied	Total score
Availability of fund said by their criteria	9	1	49	1	0	18
Mental and physical support	5	6	48	1	0	15
Special school service	5	5	50		0	15

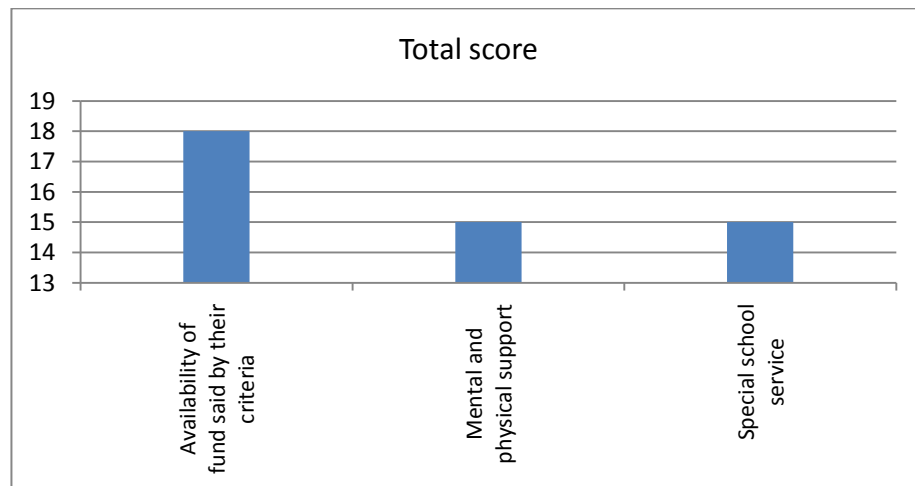
Source: Primary data

Interpretation

The above table shows the satisfaction level of KSSM beneficiaries under differently abled people, majority of beneficiaries were satisfied with financial benefit provided by KSSM with total score of 18. And lowest satisfaction level were from mental, physical support and special school services provided by KSSM.

Figure No. 3.1(c)

Level of satisfaction of KSSM beneficiaries under differently abled



Level of satisfaction of KSSM beneficiaries under women

Table No. 3.1(d)

(a) Women

Measuring variable	Highly satisfied	Satisfied	No opinion	Dissatisfied	Highly dissatisfied	Total score
Rehabilitation facilities for unwed mother	3	4	53	0	0	10
Education and employment of women	6	1	53	0	0	13
Nutrition food	20	20	18	1	1	57

Source: Primary data

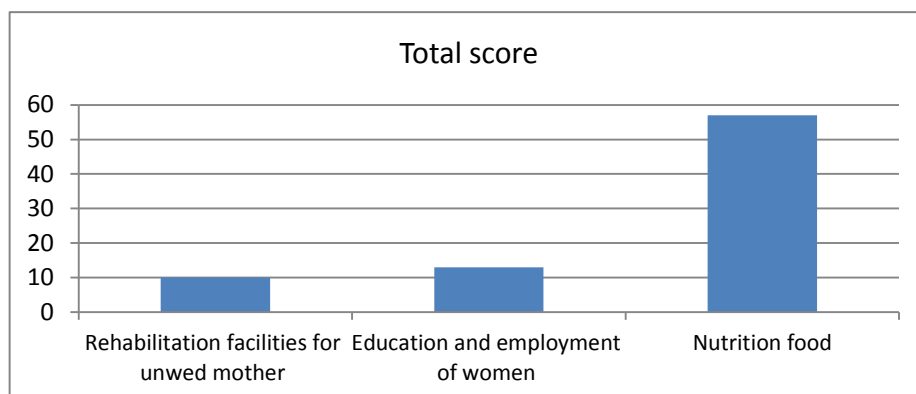
Interpretation

The above table shows the satisfaction level of KSSM beneficiaries under women, majority of beneficiaries were satisfied

with nutrition food provided by KSSM with total score of 57. Lowest satisfaction level was from rehabilitation facilities for unwed mother and education and employment facilities provided by KSSM with total score of 10 and 13 respectively.

Figure No. 3.1(d)

Level of satisfaction of KSSM beneficiaries under women



3. To find out problems and challenges faced by the KSSM beneficiaries.

Limitations of KSSM

Table No. 3.2

Measuring variable	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total score
Long delay in getting funds	2	4	10	32	14	-52
Discouraged and asked to change	2	2	14	30	12	-48
Lack of availability of necessary documents	1	6	11	34	8	-42
Attitude of workers	1	4	6	37	12	-55

Source: Primary data

Interpretation

The above table reveals that most of the respondents strongly agree that lack of availability of necessary document were the main challenges faced by KSSM beneficiaries with total score of -42. The least problem were faced by the KSSM beneficiaries were attitude of workers with total score of -55.

Figure No. 3.2
Limitations of KSSM



4. Findings

1. The level of satisfaction of KSSM beneficiaries are,
 - a) Majority of senior citizen beneficiaries were satisfied with nursing staff and care giving staff services.
 - b) Majority of children were satisfied with social protection provided to them.
 - c) Majority of differently abled were satisfied with availability of fund.

d) Majority of women beneficiaries were satisfied with nutrition food provided by KSSM.

2. The main limitation of KSSM is that lack of availability of necessary document.

5. Suggestions

- The committee may be made responsible for proper follow up and monitoring of schemes.
- Strict legal action should be taken against intentional misutilisers of the schemes, and giving wide propaganda about them will discourage non genuine applicants from seeking KSSM assistance and encourage genuine beneficiaries to avail the scheme.

6. Conclusions

Kerala social security mission is a charitable society sponsored by social Justice department, Government of Kerala. The schemes was launched to mark the improved vision of government commitment towards social security strategies. It is an improved package for solving the problem of financial difficulties among poor people and it had a definite impact up on the economically backward sector people. The programme reduced aggregate poverty. Yet the general performance of the schemes as a measure of providing financial support for the poor is satisfactory. KSSM, broke open the door of financing agencies to co-operate with the government directives to achieve generating income and providing financial assistance through KSSM programmes. More co-operation between the different agencies

involved in the implementation of KSSM and a bit more sincere as well as careful and rigorous enforcement of schemes criteria would enthuse the economically backsector masses to realise their dreams and improve their standard of living and thus leads to development of their own and their state.

The present study help's to identify importance and effectiveness of KSSM providing social and financial assistance to economically backward sector peoples.

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Self-consciousness, Self-Attributed Need For Uniqueness And Regulatory Focus Among Tattooed And Non- Tattooed Individuals

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Abstract

The aim of the study was to find the relationship and significant difference in self-consciousness, self-attributed need for uniqueness and regulatory focus with respect to tattooing behaviour. A total number of 115 participants, consisting of 57 males and 58 females were selected through purposive sampling from the various districts in Kerala. The scales used for this present study are the Uniqueness questionnaire by Lynn and Harris, Self-consciousness Scale by Feingstein, Scheier & Buss and regulatory focus scale by Higgins. The data collected were analysed using SPSS, Spearman rho correlation coefficient was used to measure degree of correlation between variables and Mann Whitney U test was used to analyse the significance differences. The results shows that there was a significant relationship among self-consciousness, self-attributed need for uniqueness and regulatory focus within tattooed and non-tattooed adults. The study further revealed that Gender as a socio-demographic factor was not significant in affecting the tattooing and non-tattooing behaviour among individual.

Keywords: Self-attributed need for uniqueness, self-consciousness, regulatory focus, tattooing.

Introduction

Tattoos are an increasingly prevalent form of self-expression, especially for adolescents however, tattooed persons may be perceived as having more negative character and as more deviant than people without tattoos. Tattoos are more common in our society today than they were in the past (Cronin, 2001) also becoming more popular across demographics (DeMello, 1995) More and more people are incorporating tattoos into their physical look. Young individuals today are more likely to have tattoos. Because of this, it's crucial to pinpoint the factors that affect tattooing and analyse their traits, public and private self-consciousness, desire for distinctiveness, and the development of regulatory fit with quantitative causal repercussions.

Self-consciousness is the disposition to be self-attentive, and aware of oneself as an individual. Need for Uniqueness is defined as having a singular quality that makes you stand out from others. The regulatory focus is on how someone approaches pleasure while avoiding pain.

According to the study of Laumann and Derick in 2006 “Tattoos and body piercings in the United States: A national data set” risk-taking behaviours are connected with body piercing and tattooing.. On contrary to that, according to the study of Amico in 2008 “Tattoo Prohibition Behind Bars: The Case for Repeal”. He came to the conclusion that it is prohibition, not practise, that is mostly to blame for the negative impacts of inmate tattooing in American prisons. Fenigstein (1987) reports people with higher levels of public self-consciousness will be more likely to choose a smaller, less noticeable tattoo because they are aware that people may have negative opinions of tattoos and they wish to avoid

getting one. Buss (1980) found that people who have a strong awareness of themselves as social objects will participate in more impression management practises. Bell (1999) claimed that because of how non-tattooed people see them, many strongly inked persons feel awkward showing off their tattoos to them. However, the extensively inked person feels more at ease revealing his or her tattoos when around other tattooed people. There is mounting evidence that some people use tattoos to express themselves or to create identities by calling attention to their bodies (Armstrong, , Owens, , Roberts, & Koch, 2002).

The Uniqueness theory (Snyder & Fromkin, 1980) examines how knowledge regarding one's similarities to others affects a person's emotions and conduct. The uniqueness theory contends that in order to avoid the negative consequences of extreme similarity and dissimilarity, humans attempt to maintain moderate levels of self-distinctiveness. People are therefore motivated to show how they are unique or different when they become more similar to others. This supports earlier research demonstrating a trustworthy connection between the need for individuality and tattoo ownership (Tiggemann & Golder, 2006; Tiggemann & Hopkins, 2011).

Such studies that take into account tattooed individuals' varying regulatory focus do not exist. In light of the fact that this variable was quite intriguing, this study aids in understanding its impact on tattooing behaviour. How a person pursues pleasure while avoiding suffering is the topic of regulatory emphasis.

Due to modernization Indians try to adopt western culture and tattoo is one of its part as it was more prevalent in western countries,

which is not the condition in the present scenario as tattoo is also prevalent in various parts of India. So the current study can be used in order to understand why this change in culture happens specifically focusing on various districts of Kerala.

Objectives

- To study the difference in self-consciousness, self-attributed need for uniqueness and regulatory focus with respect to tattooing behaviour.
- To study the relationship between self-attributed need for uniqueness, self-consciousness and regulatory focus among tattooed and non-tattooed individuals.
- To study the relationship between self-attributed need for uniqueness, self-consciousness and regulatory focus among tattooed individual.
- To study the relationship between self-attributed need for uniqueness, Self-consciousness and regulatory focus among non-tattooed individual.

Hypotheses

- H0: There will be no significant difference in self-consciousness, self-attributed need for uniqueness and regulatory focus among tattooed and non-tattooed individuals.
- H0: There will be no significant relationship in self-attributed need for uniqueness, self-consciousness and regulatory focus among tattooed and non-tattooed individuals.

H0: There will be no significant relationship in self-consciousness, self-attributed need for uniqueness and regulatory focus among tattooed individuals

H0: There will be no significant relationship in self-consciousness, self-attributed need for uniqueness and regulatory focus among non-tattooed individuals.

Method

Aim of the current study is to find the relationship and significant difference in self consciousness, self-attributed need for uniqueness and regulatory focus with respect to tattooing behaviour.

Sample characteristics

For the purpose of research two sets of samples of two different categories were selected, tattooed and non-tattooed individuals. The geographical location includes different districts of Kerala.. There uniqueness, self-consciousness and regulatory focus was assessed by the questionnaire. Other demographic variables like gender, their concerns about tattoo, no of tattoos they prefer, qualification, age, educational qualification, job status, religion, relationship status were considered.

Sampling technique and procedure

The sampling strategy adopted in this study was Purposive Sampling technique. Participants were given the link of the already prepared google form questionnaires. Participants completed the scale in a single session and submitted their responses.

Research design

In order to achieve the objective of the study the investigator selected descriptive research design. The data was collected through online surveys.

Tools adopted

The scales used for the present study includes the Uniqueness questionnaire by Lynn and Harris. The Self attributed need for Uniqueness is a 24-item self-report scale. For the Self-Attributed Need for Uniqueness Scale, subjects responded with the number of the word that best completes the statement. The alpha values for the scales, which ranged from .63 to .93, suggest that all of the scales are reasonably reliable.

The Self-Consciousness Scale (Feingstein, Scheier and Buss, 1975) is a 23-item questionnaire, which measures individual differences in private and public self-consciousness. Scoring in self-consciousness: Strongly Disagree;” 5 = “Strongly Agree “Private Self-Consciousness: items (1, 3, 5, 7, 9, 13, 15, 18, 20, and 22) Public Self-Consciousness: items (2,6, 11, 14, 17, 19, and 21) Social Anxiety: items (4, 8, 10, 12, 16, and 23). Reverse code items 8 and 11. Internal consistency of the revised self-consciousness scale is: private selfconsciousness .75, public self-consciousness. 84 and social anxiety. 79.

Regulatory focus scale consist of 11 item scale by Higgins, 1998, distinguishes between two systems based on different needs: promotion and prevention. The reliability of both the promotion and prevention factors were $\alpha = .85$. The correlation between promotion- and

prevention-focus was $r = .45$, $p < .001$. Scoring of regulatory focus scale (RFS) is for items 1-8: 1= never or seldom, 2, 3=sometimes, 4, 5=very often, for item 9: 1=never true, 2, 3=sometimes true, 4, 5=often true, for items 10 and 11: 1=certainly false, 2, 3, 4, 5=certainly true, Items -1, 3, 7, -9, 10, and -11 are Promotion scale items. Items -2, -4, 5, -6, and -8 are Prevention scale items.

Results and discussion

The reliability test results indicated the value of Cronbach's Alpha at 0.924. The data was found to be reliable. The normality of the data was checked and based on the information obtained non parametric test was opted, Spearman rho correlation for correlational analysis and Mann Whitney U test for finding out significant difference is be used.

Table 1: Mann-Whitney U test on significant difference between tattooed and non-tattooed individuals.

	Group	N	Mean Rank	U	Sig.
Self attributed need for uniqueness	Non-tattooed	61	56.20	3428.00	.536
	Tattooed	54	60.04	3242.00	
Self-consciousness	Non-tattooed	61	57.02	3478.50	.739
	Tattooed	54	59.10	3191.50	
Regulatory focus	Non-tattooed	61	58.35	3559.50	.903
	Tattooed	54	57.60	3110.50	

Mann Whitney U test on tattooed and non-tattooed individuals shows mean ranks of 56.20 and 60.04 respectively for Self-attributed need for uniqueness scale. The results of Man-Whitney U test on Self-consciousness scale for tattooed and non-tattooed individual's shows mean ranks of 57.02 and 59.10 respectively. In case of regulatory focus among tattooed and non-tattooed individuals shows mean ranks of 58.35 and 57.60. Also shows significance of .536 for self-attributed need for uniqueness, .739 for self-consciousness and .903 for Regulatory focus. It is not significant and which indicates that there is statistically no significant difference among the variables and samples taken .Hence the hypothesis" There will be no significant difference in self-consciousness, self-attributed need for uniqueness and regulatory focus among tattooed and non-tattooed individuals" is accepted .

Table 2: Correlation between Self-attributed need for uniqueness, Self-consciousness and Regulatory focus among adults

Variables	N	Mean	SD	1	2	3
Self attributed need for uniqueness (1)	115	11.56	3.46	1.000	.333**	.193*
Self-consciousness (2)	115	34.02	10.38	.333**	1.000	.369**
Regulatory focus (3)	115	31.05	2.33	.193*	.369**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

Correlation between Self-attributed need for uniqueness (1), Self-consciousness (2) and Regulatory focus (3) of the participants identified through Spearman's rho. The mean and standard deviation of self-attributed need for uniqueness is 11.56 and 3.46 respectively, of self-consciousness is 34.02 and 10.38 respectively, and of regulatory focus is 31.05 and 2.33 respectively. The correlation coefficient of Self-attributed need for uniqueness and self-consciousness is 0.333, which is significant and indicates there is statistically significant positive relationship between the variables at 0.01 level. Between Self-attributed need for uniqueness and with regulatory focus the correlation coefficient is found to be 0.193, which is also significant and indicates there is statistically significant positive relationship between the variables at 0.05 level. The correlation coefficient of self-consciousness and regulatory focus is 0.369, It is significant and indicates there is statistically significant positive relationship between the variables at 0.01 level. From an overall basis, it is significant and which indicates that there exists a statistically significant positive relationship among the variables. Hence the hypothesis "There will be no significant relationship in self-attributed need for uniqueness, self-consciousness and regulatory focus among tattooed and non-tattooed individuals." is accepted.

Table 3: Correlation between Self-attributed need for uniqueness, Self-consciousness and Regulatory focus scale among tattooed individual

	N	Mean	SD	1	2	3
Self attributed need for uniqueness (1)	45	11.60	3.27	1.000	.373*	.017
Self-consciousness (2)	45	33.44	9.26	.373*	1.000	.238
Regulatory focus (3)	45	30.57	2.57	.017	.238	1.000

** Correlation is significant at the 0.01 level (2-tailed).

Correlation between Self-attributed need for uniqueness (1) Self-consciousness (2) and Regulatory focus (3) among tattooed individuals. The mean and standard deviation of self-attributed need for uniqueness is 11.60 and 3.27 respectively. The mean and standard deviation of self-consciousness is 33.44 and 9.26 respectively. The mean and standard deviation of regulatory focus is 30.57 and 2.57 respectively. The correlation coefficient of Self-attributed need for uniqueness and self-consciousness is 0.373, which is significant and indicates there is statistically significant positive relationship between the variables at 0.05 level. The correlation coefficient of regulatory focus and self-attributed need for uniqueness is 0.017, weak positive correlation which is not statistically significant. The correlation coefficient of Self-attributed need for uniqueness and regulatory focus

is 0.238, weak positive correlation which is also not statistically significant. Hence the hypothesis” There will be no significant relationship in self-consciousness, self-attributed need for uniqueness and regulatory focus among tattooed individuals” is partially accepted.

Table 4: Correlation between Self-attributed need for uniqueness, Self-consciousness and Regulatory focus scale among non- tattooed individual

	N	Mean	SD	1	2	3
Self attributed need for uniqueness (1)	70	11.54	3.60	1.000	.325**	.200
Self-consciousness (2)	70	33.40	11.085	.325**	1.000	.329**
Regulatory focus (3)	70	31.36	2.140	.200	.329**	1.000

** indicates Correlation is significant at the 0.01 level (2-tailed).

Correlation between Self-attributed need for uniqueness (1), Self-consciousness (2) and Regulatory focus (3) among non-tattooed individuals. The mean and standard deviation of self-attributed need for uniqueness is 11.54 and 3.60 respectively. The mean and standard deviation of Self-consciousness is 33.40 and 11.085 respectively. The mean and standard deviation of regulatory focus is 31.36 and 2.140 respectively. The correlation coefficient of Self-attributed need for uniqueness and self-consciousness is 0.325, which is statistically significant and indicates a positive relationship between the variables

at 0.01 level .The correlation coefficient of Self-attributed need for uniqueness and regulatory focus is 0.200, which is not statistically significant. The correlation coefficient of self-consciousness and regulatory focus is 0.329, it is statistically significant and indicates a positive relationship between the variables at 0.01 level. Hence the hypothesis “There will be no significant relationship in self-consciousness, self-attributed need for uniqueness and regulatory focus among non-tattooed individuals” is partially accepted.

Conclusion

The study found that there is a significant positive relationship between Self-consciousness, self-attributed need for uniqueness and regulatory focus among adults. There was no significant difference among self-consciousness, self-attributed need for uniqueness and regulatory focus within tattooed and non-tattooed individual. The correlation between Self-consciousness, self-attributed need for uniqueness and regulatory focus among tattooed and non tattooed population varied.

The study highlighted tattoos as a means of achieving or accentuating self-perceived uniqueness in the appearance domain is correlated with Self-consciousness. Self-consciousness is constant attentiveness to inner aspects of the self that only the individual can observe include thoughts, feelings, goals and other personal experiences, also constant attentiveness toward aspects of the public self include actions, appearance and manner. High levels of public self-consciousness tended to participate in carefully planned and socially safe interactions. Among non tattooed individual self consciousness

was correlated with Regulatory focus. Regulatory focus is on how someone approaches pleasure while avoiding pain. The study helped us to see tattooing behavior in a different perspective. The limitation of the study includes the sample size and the samples were not homogenous in nature as it included from different age and socioeconomic background. It is beneficial to combine quantitative method with qualitative research method for making the research more meaningful. In the form of qualitative interviews, future research should focus on the individual reasons for different kinds of tattoos. The most of the studies were much older and hence conducting new research would strengthen the knowledge bank about tattooing behaviour. Since this is not a widely studied topic future researchers can focus on different variables and research designs.

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A study on the financial literacy level and investment behaviour of employed youth in Kottayam municipality

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Abstract

In present scenario, the integrated global financial market as well as the changing financial objectives has enhanced the individual's responsibility in managing their own finances. Financial literacy provides necessary knowledge, skills and tools for individuals to make informed financial decisions with confidence, to manage personal wealth with efficiency and to increase financial competence. This topic is mainly selected to analyse the financial literacy level and investment behavior of employed youth in Kottayam municipality and to identify whether it leads to the economic development of the country. It also aims at identifying whether the financial literacy level of employed youth helps them to make a proper investment. This study aims at educating the consumers regaining financial investment plans at various stages of life and how financial education programmes can be designed to best address their needs.

Key words: Financial literacy, investment behaviour

1.1 Introduction of the Study

Individual financial decisions have a significant impact on the nation's economic stability and growth. The spectrum of the entire economy is becoming wider as a result of many financial and economic reforms. Several new financial products are being introduced into the market, necessitating the need for people to carefully prepare and invest their money. The need of the study is to analyze the demographic factors which affect the financial literacy of the respondents and the financial literacy level among employed youth in Kottayam municipality. This study is to analyse the investment behavior among employed youth in Kottayam municipality..

1.2 Objectives

- To analyse the various objectives of investment among youth.
- To study the level of satisfaction of investors regarding various investment

2. Research methodology

This research work exploits both primary and secondary source of data to come to a conclusion. Data collection was done in phased manner and includes two phases. In the first phase, various related study were reviewed so as to capture a detailed idea on various aspects of the problem to formulate the conceptual framework for the research. In the second phase primary data were collected using a well-structured questionnaire

2.1 Population for the study

The desired population is the employed youth in Kottayam municipality.

2.2 Sample size

For carrying out the research work a total of 100 samples from the selected category of employed youth were selected. The sample is selected from 50 wards in kottayam municipality and from each ward 2 samples are taken. The data was collected by distributing questionnaire.

3. Analysis and interpretation

1. Table showing on the basis of rank with weighted average method on objective of investment

Objective of investment	Weighted score on number of respondents					Total score	Average score	Rank
	1	2	3	4	5			
Retirement	310	72	24	10	7	423	300	1
Personal needs	60	168	75	42	0	345	300	5
Uncertainty	100	160	78	28	0	366	300	4
Growth in income	155	124	54	30	5	368	300	3
Income generation	225	68	57	16	11	377	300	2
Capital appreciation	60	92	48	62	18	280	300	6
Child's education	95	36	63	36	37	267	300	7

(1-strongly agree 2-agree 3-neutral 4- disagree 5-strongly disagree)

Average weight = $(5+4+3+2+1)/5 = 3$, number of respondents = 100, average score = $100 \times 3 = 300$

Weights given – strongly agree – 5w, agree – 4w, neutral – 3w, disagree – 2w, strongly disagree – 1w.

Interpretation: Table no 1: shows that rank given by the respondents about objective of investment on basis of their interest on investment. From the table it can see that retirement (423) is ranked first since majority of the respondents are invested for getting a wealth after retirement

2. Table showing on the basis of rank with weighted average method of satisfaction of various factors of investment

Factors of investment	Weighted score on number of respondents					Total score	Average score	Rank
Return on investment	285	84	39	6	6	420	300	1
Diversification	105	200	54	18	2	379	300	4
Cash allocation	210	112	60	16	2	400	300	3
Trading frequency	100	76	63	72	4	315	300	6
Liquidity	230	120	63	6	0	419	300	2
Risk	180	112	54	20	8	374	300	5

(1 – Highly satisfied, 2 – satisfied, 3 – neither, 4 – dissatisfied, 5 – highlydissatisfied)

Average weight = $(5+4+3+2+1)/5 = 3$, Number of respondents = 100, Average score = $100 \times 3 = 300$

Weights given – highly satisfied – 5w, satisfied – 4w, neither – 3w, dissatisfied – 2w, highly dissatisfied – 1w.

Interpretation: Table no 2: shows that rank given by the respondents about the satisfaction level of factors of investment. From the table we can see that return on investment (420) is ranked first since majority of the respondents are highly satisfied and liquidity is ranked second because it can easily converted .

4. Testing of hypothesis

H₀: There is no association between financial literacy and educational status.

H₁: There is association between financial literacy and educational status

Calculations:

O	E	(O-E) ²	(O-E) ² /E
1	1	0	0
1	1	0	0
10	2	90.25	180.5
5	13	54.76	4.416
3	0	9	0
0	.6	.36	.06
0	.6	.36	.06
2	3.36	1.849	.55
5	7.44	5.95	.79
5	0	25	0
0	.3	.09	.3
1	.3	.49	1.63
2	1.68	.0102	.006
2	3.72	2.95	.80
1	0	1	0
1	.75	.0625	.083
0	.75	.5625	.75

5	4.2	.64	.152
5	9.3	18.49	1.98
5	0	25	0
1	1.45	.2025	.139
1	1.45	.2025	.139
1	9	50.69	6.24
20	18	4.08	.22
6	0	36	0
1	.4	36	.9
1	.4	36	.9
2	2.24	.0576	.025
2	7.06	8.7616	1.76
1	0	1	0
1	.5	.25	.5
1	.5	.25	.5
6	2.8	10.24	3.66
1	6.2	27.04	4.36
1	0	0	0
TOTAL			211.42

$$X^2 = \sum (O-E)^2 / E = 211.42$$

$$\text{DEGREE OF FREEDOM} = (r-1)(c-1)$$

$$= (5-1)(7-1) = 24$$

Table value for X^2 for 24 degree of freedom at 5% level of significance is 36.415. The calculated value is more than table value. Therefore, we reject H_0 .

Interpretation: There is an association between financial literacy and educational status.

5. Findings

1. The objective of investment is to secure for the future needs and the most of the respondents prefer for retirement because a retiree receives a regular income until their demise.
2. Majority of respondents are highly satisfied on return on investment and liquidity because it can easily converted and make use of that whenever needed.
3. There is an association between financial literacy and educational status of the investors. By analyzing the level of education, individuals with higher educational levels would have greater financial literacy.

6. Recommendations

- As part of their corporate social responsibility, companies can also focus on improving community financial literacy by offering financial education to different groups.
- If the government, policymakers, financial institutions, and banks want to increase demand for those investment avenues that are comparatively riskier and can yield higher returns, it is recommended that they take the required measures to improve financial literacy among the population.
- The regulatory body should create a secondary capital market and encourage the growth of the primary capital market. Individuals' exposure to the capital markets is enhanced as a result of these markets.

7. Conclusion

The global financial and economic crisis has influenced economic behavior and financial decision-making not only in economic topics, but also in significant social classes in the future. Individual consumers' financial literacy influences their ability to make informed choices and decisions about their personal finances. This is particularly important for families with limited resources, as poor financial decisions can cost them a lot of money. The purpose of this paper is to describe the importance of financial literacy for individual users, to identify the major environmental factors that influence ownership of significant financial knowledge, and to examine the relation between household investment behavior and economic growth through the position of savings and investments.

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Psychological Well-Being among Covid 19 Recovery Patients

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Abstract

The COVID-19 virus, which is caused by the SARS-CoV-2 virus, is a severe, life- threatening illness that makes it more difficult to manage a rare disease. The psychological health of people was impacted by ongoing uncertainty, being alone, and being unable to receive therapy and medical attention. Researcher's objective was to study the psychological well-being among the recovery covid-19 patients. For this, a sample of 30 patients, 21 men and 9 women are collected using the Convenience sampling method. For this, a descriptive study strategy was chosen. The Ryff psychological well-being scales (PWB), a 42-item version, were used to measure psychological well-being in this study. To test hypothesis one way ANOVA and t test were used. The findings of the study reveals that there is no significant difference regarding age, gender and socioeconomic status with respect to psychological well being. The findings suggest a need for additional study in this area, elaborating on the line of present study by selecting more independent variables and replicating this by using state wide samples.

Key words: Psychological well being, recovery COVID-19 patients,

Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age.

After recovering from COVID 19, patients can have to deal with the effects of the condition on their mental health. This is especially true for the unwell, which needed time in the intensive care unit for incubation. These individuals may struggle to resume daily activities, have trouble returning to work, endure physical, cognitive, and behavioural health deficits, as well as persistent pain and muscle weakness.

According to Huppert (2009), "Psychological well-being is about lives going well. It is the combination of feeling good and functioning effectively." An individual with high psychological well-being is happy, capable, well-supported, satisfied with professional and personal life. Psychological well-being indicates physical and mental wellness. Singh (1990) has stated that psychological well-being is difficult to define. It has been taken to consist of discomfort or desirability and from any disturbance of mental functions. It is a somewhat malleable concept which has to do with people's feelings

about everyday life activities. Such feelings may range from negative mental states or psychological strains such as anxiety, depression, frustration, emotional exhaustion, unhappiness, dissatisfaction to a state which has been identified as positive mental health. Singh, Bajpai, & Kaswan. (2021) found that COVID-19 pandemic represents an unprecedented threat to mental health and which will affect psychological wellbeing as a result.

Review of literature

Roothman, Kirsten, Wishing (2003) conducted a study to determine whether men and women differ with regard to aspects of psychological well-being. A meta analysis was performed on data from a trans University project involving a multicultural availability sample of 378. The participant's each completed 13 scales that measures psychological well-being in affective, physical, cognitive, spiritual self and social aspects. Statistically significant gender differences with small to medium practical effects were found. The result are in line with gender stereotypes reflects the impact of long lasting social inequality between men and women

Peter and Creed (2003) conducted a study on three hundred and eighty-six unemployed adults were administered surveys measuring wellbeing, the latent (social support, activity, collective purpose, time structure, status) and manifest (financial strain) benefits of employment, and neuroticism. The study found that no gender main effects exists. The young unemployed reported higher wellbeing, more social support, and higher status than the mature group, and less time

structure and higher status than the middle-aged group. No differences were identified between the middle-aged and mature unemployed.

Bhat, (2018) conducted a study found that A significant difference was found between rural and urban students on the psychological well-being, with rural students having higher psychological well-being than urban students.

Linglebach et.al (2021) conducted a study on effects of the COVID-19 Pandemic on Psychological Well-Being and Mental Health Based on a German online survey investigating health-related, social, behavioral, and psychological effects of the COVID-19 pandemic. One hundred and seventy three adults participating in the survey were analyzed (39.9% male, age: $M = 44.81 \pm 13.31$). The study found that especially participants at younger age and (b) greater risk of a severe course of disease reported reduced mental well-being and seemed to be weakened in their psychological protective factors in our sample. and reduce stress models.

Raj and Devi (018) found that Results revealed that young adults have moderate psychological well-being level. Results also stated that there was significant difference between gender and psychological well-being. Also the women were facing more psychological problems than male

Method

The aim of the current investigation was to determine the significant differences in psychological well-being with respect to gender, socioeconomic status, age and among the recovery COVID-19

patients. A sample of 30 Covid19 recovery patients in the range of 15-65, 21 men and 9 women were collected using the Convenience sampling method. For this, a descriptive study strategy was chosen. The Ryff psychological well-being scales (PWB), a 42-item version, consists of 6 variables: Self acceptance, positive relation with others, autonomy, environmental mastery, purpose in life and personal growth, were used to measure psychological well-being in this study. The respondent must rate themselves on a 6 point likert ranging 1(strongly disagree) to 6 (strongly agree). The test re-test reliability coefficient of RPWBS and 6 variable were found to be 0.82 and 0.71, 0.77,0.78 ,0.77,0.78,0.70 and 0.78. The correlation coefficient of RPWBS with satisfaction, happiness and self esteem were found out to be 0.47, 0.58 and 0.46.

Inclusion Criteria

- Only two genders were considered for the study
- Only Covid 19 recovery patents
- People living in the state of Kerala

Exclusion Criteria

- Those with age below 15 and above 65 were excluded
- People who belong to lower middle class were also excluded
- People who cannot answer the questions were excluded
- Those who are taking or undergoing any psychological treatments.

Objectives of the study

- To study the psychological well-being of recovery covid19 patients with respect to age.
- To study the psychological well-being of recovery covid19 patients with respect to socioeconomic status.
- To study the psychological well-being of recovery covid19 patients with respect to gender.
- To examine the socioeconomic details of the sample collected.
- To assess psychological well-being based on different sociodemographic variables.

Hypotheses

- There will be no significant difference in psychological well-being with respect to age
- There will be no significant difference in psychological well-being with respect to socioeconomic status.
- There will be no significant difference in psychological well-being with respect to gender

Result and discussion

Table 4.1 Analysis of sociodemographic data of the sample

Variables	Subgroups	No of samples	Total
Age	15-25	22	30
	26-35	2	
	36-45	4	
	46-55	1	
	56-65	1	
Gender	Male	21	30
	Female	9	
SES	Upper	16	30
	Middle	14	

Table 4.1 indicates that the sociodemographic details can be classified into three namely analysis of age, socioeconomic status and gender. On analysing age, it can be classified into subgroups and analysing the gender, samples taken from the male and female recovery covid19 patients.

Table 4.2: Analysis of significant difference in psychological well-being of recovery covid19 patients with respect to age.

Age	N	Mean	F	Level of significance
15-25	22	123.2	2.192	0.099
26-35	2			
36-45	4			
46-55	1			
56-65	1			

Analyzing Table 4.2 the result indicates that there is no significant difference in psychological well-being of recovery covid19 patient with respect to age. The calculated F value is not significant at .05 level, hence hypothesis “There will be no significant difference in psychological well-being with respect to age” is accepted.

Table 4.3 shows the analysis of significant difference in psychological wellbeing of recovery covid19 patients with respect to socioeconomic status.

Variable	SES	N	Mean	t-value	Level of significance
Psychological wellbeing	Upper	16	163.94	0.140	0.71
	Middle	14	172.79		

On analysing the data, there is no significant difference in psychological well-being of recovery covid19 patients with respect to

socioeconomic status as the t value is .140 which is not significant at .05 level, hence the hypothesis “There will be no significant difference in psychological well-being with respect to socioeconomic status” is accepted. According to Andreenkova and Andreenkova “Male and females had different mental reaction to COVID on few aspects like anxiousness, apathy, restlessness and general depression but not on social aspects as loneliness and isolation” current study is not in line with the existing findings.

Table 4.4: Analysis of significant difference in psychological well-being of recovery covid19 patients with respect to gender.

Variable	Gender	N	Mean	t-value	Level of significance
Psychological wellbeing	Male	21	165.24	0.5	0.460
	Female	9	174.67		

On analyzing the data indicates that there is no significant difference in psychological well-being of recovery covid19 patients with respect to gender. As the t value is greater than .05, the hypothesis “There will be no significant difference in psychological well-being with respect to gender” is accepted.

Conclusion

The findings of the present study indicates that the psychological wellbeing doesn't vary with respect to selected sociodemographic variables and also shows that the nature of the covid19 impact may not be as relevant for the age, gender and socio economic status. These

insights allow us to provide tailored recommendations for preventive and immediate actions to promote psychological well-being.

Despite all efforts to make the study as systematic and comprehensive as feasible, some limitations that were not available may have been included in the study. Along with limitations, the small sample size, time constraints and the pandemic corona situation possibility to apply the study to a large representative population found to be difficult.

Based on the study's findings, only one variable was taken into consideration. The study can be expanded upon in the future by the use of additional independent variables and replication utilising state-wide samples.

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Materialism and Social Anxiety among Early Adults

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Abstract

Research on social anxiety has moved from rudimentary awareness that it is not merely shyness to a much more sophisticated appreciation which includes certain enquiries into its connection with other psychological peculiarities. The current study aimed to focus on the relationship between social anxiety (e.g.; fear of social interaction or negative judgement by others) and materialistic behavior (e.g.; worldly possessions or acquisition of material objects) in early adults. The sample for the present study consisted of 144 participants (88 females and 56 males) in the age group of 18 to 40 years, completed questionnaires to measure the materialistic level and social anxiety level. The sample was administered a measure of material value scale (Richins and Dawson's, 2004) along with social interaction anxiety scale (Mattick and Clark, 1998). Results revealed that both social anxiety and materialistic behavior are significantly related. It was also found that there is a significant difference among male and female for the variable materialism.

Keywords: Social anxiety, Materialism, Early adulthood, Gender

On 25th March 2020, BigBasket - a key online grocery player in India had the following message “We'll be back soon! We are currently experiencing unprecedented demand. In light of this, we are restricting access to our website to existing customers only. Please try again in a few hours.” So overwhelming was the response that it faced a breakdown due to a steep increase in demand amid COVID-19. Grofers – a rival, had a similar kind of message which said “Due to the sudden rush, we have stopped servicing many locations, but we are working to increase capacity and will be resuming operations shortly.” Amazon – one of the leading ecommerce players in the country, and the world, has announced on its site that the customers are relying on them like never before in their social distancing and self-quarantine efforts. The SARS outbreak that infected over 2700 people in 2002 have dramatically changed people's shopping habits as they were afraid of shopping outdoors. This has increased online shopping usage, globally. In India, it has led to a rise in the number of FTUs or first-time-e-commerce-users in India, who had been so far inhibited to shop online.

Materialistic trait is closely linked to the impulsive buying behavior (Vohra, 2016). In one way materialistic behavior drives the impulsive buying as means to make their existence more significant when the society become alienated to them. The Coronavirus disease 2019 (COVID-19) pandemic outbreak has led to travel bans and restricted social contact. Sudden decrease of social activities can easily trigger social anxiety, especially for community youths. So it's also clear enough to assume that this pandemic season is creating a void in social relationships.

The advent of early adults as avid consumers in the last 20 years has also raised concerns about the increase of materialism in early adults (Musarrat, 2016). During the age 20-30 time when susceptibility to interpersonal influence is particularly high. In the present times, the materialistic people are living a robotic life and try to be more competitive with each other in terms of possessions. They spend more time on social media rather than their family and have become more status conscious. Their purpose in life is to live a luxurious life and become a part of our elite society. In today's scenario, young people are moving away from traditional ideas and embracing a liberal mindset. Every day, a new must-have item that's cool goes on the screen which has made the youth demanding. Previous research has shown that lower income (Kasser, Ryan, Zax, & Sameroff, 1995), low self-esteem (Park & John, 2011), contribute to people adopting materialistic values and goals. Erikson said that we must have a strong sense of self before we can develop successful intimate relationships. Adults who do not develop a positive self-concept in adolescence may experience feelings of loneliness and emotional isolation.

Early adults are highly motivated to establish social bonds. But not many of them achieve a desired status or acceptance in the society and they often experience social rejection. Because rejection for them is particularly painful, they might seek material relationships in substitution. Avoidant individuals, on the other hand, may simply 'turn off' the attachment system (Fraley. et al, 2000), thus effectively shutting down the very system we hypothesize as the mechanism for increased materialistic values.

Social anxiety is the fear of negative evaluations by others in social situations. Social anxiety causes one to Perceive that other will think that they are inadequate and will reject him/her and this leads to feelings of apprehension, self-consciousness, and emotional distress (Leitenberg, 1990). The presence of social anxiety in early adults leads to increase in their materialistic tendencies. Materialism is positively associated with negative aspects of well-being such as social anxiety and negative emotions (Christopher, Kuo, Abraham, Noel, & Linz, 2004). Roberts, Manolis, and Pullig (2014) conducted a study to test the relationship between contingent self-esteem and compulsive buying tendencies and found that contingent self-esteem was positively related to compulsive buying and that this relationship was mediated by fear of negative evaluation and social identity concerns. Fear of negative evaluation led to increasing in materialistic orientations and compulsive buying (Biolcati, 2017).

In the midst of all economic growth and social progress, the world was struck by the pandemic. This has created a lot of changes in human life in every form. One of the visible changes was the increase in the rate of online purchases. The world has witnessed a similar trend during SARS outbreak in 2002. One of the factors that closely relate to the impulsive buying behavior is the materialism (Vohra, 2016). In one sense, materialistic behavior drives impulsive buying as a way to make their existence more meaningful when society becomes alienated from them. Oxford dictionary refers to materialism as: “keen on material needs and expectations, and ignore the spiritual things, which is based on a material interest lifestyle, opinions and tendencies”. But today the definition of materialism has been crafted by Belk. According to him, a

person with high level of materialism will worship his materialistic possessions above all and they built their own life believes and behaviors. This definition throw light on how the materialism influence our behavior and other believes.

Social anxiety is defined as the fear of social interactions where scrutiny by others may possibly lead to social embarrassment or an overall fear of negative evaluation (Levinson, Kaplan, & Rodebaugh, 2014). It can be occurred by fear and anxiety of social scrutiny, level of anxiety related to the initiation and maintenance of social interactions (e.g., meeting and talking with strangers, friends, or people of the opposite sex). This study mainly focuses on the anxiety associated with the interaction. The early adult, mainly people belong to the age group 18- 40 is the population chosen for conducting the study.

According to studies, materialism is used as a coping technique to provide a momentary escape from the fear of social rejection (Norris et. al 2012). It has the potential to reduce people's quality of life and productivity. By conducting this research, we learn about the variables that contribute to and perpetuate such a negative trait among our country's human resources, and measures can be initiated to promote well-being and productivity may be implemented.

Because high levels of materialism have been empirically associated with low levels of happiness and life satisfaction (Richins & Dawson 1992), social critics and social policy makers may be interested in how to reduce levels of materialism. Materialism is defined as importance attributed to Individuals high on materialistic

values feel dissatisfied with present possessions and often wish to acquire more or nicer things which they feel could lead to happiness. For materialists, possessions and their acquisition are at the forefront of personal goals and dictate “ways of life”. In the social sciences, materialism signifies a preoccupation with materiality and material processes, and how these contribute to forming the social. This can take on a variety of forms, which are all accompanied by different bodies of theory. At present, social scientists who describe themselves as materialists tend to fall into one of three categories: 1) they look at material culture – i.e. how we use things as part of everyday life – this is not tied to a particular theoretical framework 2) they look at the economic conditions of production, usually following a Marxist framework (historical/dialectical materialism) or 3) they look at relations between humans and ‘nonhumans’ such as rocks, animals, bacteria under a ‘new materialist’ framework. This entry is looking at the two theoretical directions called historical/dialectical materialism and new materialism.

Materialism can play an important role in individual life. According to Shrum et al. (2013), materialism has the role of managing identity and maintaining self-awareness. Material pursuits help to meet the need for uniqueness and be-longing, and can compensate for threatened self-esteem, because people believe that material and wealth make them more socially attractive, or react to the threat of self-esteem, especially when people think when they are excluded by society (Jiang et al., 2015). In addition, material wealth can help restore and maintain a sense of stability, identity, control and positive self-image, and is a means of reducing stress (Brouskeli &

Loumakou, 2014). On an individual level, research shown that in general materialism is inversely associated with well-being, self-esteem, quality and satisfaction of life. Besides, materialism also seems to be positively correlated with psychological and physical difficulties (Roberts & Clement, 2007). So, the level of social interaction anxiety might have a relation with the increased materialistic value that we are witnessing.

Having a materialistic value orientation is also associated with various negative consequences, such as compulsive buying (Dittmar, 2005), credit overuse (Richins, 2011), increased loneliness (Pieters, 2013), depression and anxiety (Kasser & Ryan, 1993), and reduced subjective well-being (Richins & Dawson, 1992; Roberts & Clement, 2007).

Acquisition as the pursuit of happiness is the value that material possessions have as means to improving one's happiness. According to Richins and Dawson (1992, 304), "it is the pursuit of happiness through acquisition rather than through other means (such as personal relationships, experiences, or achievements) that distinguishes materialism." Acquiring possessions may decrease people's sense of dependence on others and can be a means to bolster feelings of competence and success (Furby, 1978; Richins, 2011) and to regain control (Heckhausen et al., 1989). More generally, the motivational theory of life span development (Heckhausen et al., 2010) specifies that older people compensate for decreased perceived control over life by anticipating and imagining success and enhancing their perceptions of personal control, which may raise materialism.

Social anxiety is defined as the fear of social interactions where scrutiny by others may possibly lead to social embarrassment or an overall fear of negative evaluation (Levinson, Kaplan, & Rodebaugh, 2014). Socially anxious individuals have a core fear of negative evaluation and actively avoid social situations where potential scrutiny, humiliation, or embarrassment may occur, leading to marked distress and significant disturbances in functioning (American Psychiatric Association, 2013). A hallmark feature of social anxiety is the excessive fear of social situations, especially those that carry a potential evaluation or scrutiny from others.

Several research studies have been conducted in regards to social anxiety level and age categories. It should be higher for younger adults; effects of high social anxiety levels may be relatively more detrimental for older adults. Social anxiety decreases with age (Trollor et al., 2007; Wolitzky-Taylor et al., 2010). High social anxiety levels may also impair intimate relationships, such as with close friends, family (Antony & Swinson, 2017) and intimate relationships in general. Similarly, regarding romantic relationships, young persons with high social anxiety levels were less emotionally expressive, engaged less in self-disclosure, and did not reach high intimacy levels (e.g., Sparrevohn & Rapee, 2009). Thus, social anxiety has a negative impact on intimate relationships as well.

Furthermore, individuals with social anxiety (SA) perceive even benign social opportunities and contexts as threatening (Wong, Gordon, & Heimberg, 2014), often relying on the use of safety behaviors in an attempt to prevent feared outcomes of negative

evaluation and social rejection (Salkovskis, 1991). It is not surprising that acute social anxiety can lead to social withdrawal and isolation from others (Leary 1983).

Interestingly, compulsive buyers also exhibit increased social anxiety, alienation, and lowered self-esteem compared to non-compulsive buyers (Black 2001; King 1981). Thus, compulsive buyers may compulsively shop in order to improve their social relationships (Valence et al. 1988). Additionally, materialists reduce social anxiety by using products to gain the respect of others (Dittmar et al. 2007; Richins 2011).

The cognitive theory about social anxiety is that patterns of thoughts and beliefs play an important role in social anxiety, and targeting these thoughts and beliefs can be a helpful way to treat it. These patterns of thinking tend to lead them to avoid social interactions. This theory asserts that social anxiety is related to overestimating the negative aspects of social interactions, and underestimating the positive aspects.

Method

Operational Definition

Materialism

Materialism is defined as importance attributed to individuals high on materialistic values feel dissatisfied with present possessions and often wish to acquire more or nicer things which they feel could lead to happiness. For materialists, possessions and their acquisition are at the forefront of personal goals and dictate “ways of life”. Greater

score in the material value scale indicates higher materialistic character.

Social Anxiety

According to Mattick and Clarke's social interaction anxiety is defined as "distress when meeting and talking with other people". Greater score in the social anxiety scale indicates higher social anxiety.

Objectives

- To study whether males and females differ in social anxiety among early adults
- To study whether males and females differ in materialism among early adults
- To find strength and direction of the relationship between materialism and social anxiety among the early adults.

Hypotheses

- There will be significant gender difference in the materialism among early adults.
- There will be significant gender difference in the social anxiety among early adults.
- There will be a significant relationship between materialistic behavior and social anxiety among early adults.

Design

The research adopts a descriptive research design.

Sample

Data was collected from individuals ranging from age group 18 to 30 in early adulthood using purposive sampling technique. Respondents were from different part of Kerala. There were 144 participants including 87 females and 57 males.

Inclusion criteria

- Aged between 18 to 30 years.
- Males and Females
- College students and employed people
- English literacy.

Exclusion criteria

- Differentially able people
- Illiterate people
- Individuals that are unable to perceive information properly

Tools used**1. Material value Scale (Richins and Dawson's, 2004)**

Materialism construct was measured using Richins and Dawson's (2004) short form of the MVS. This 9 item scale views materialism as a value and includes three sub-dimensions: centrality, success and happiness. Each item is scored on a scale ranging from 1 to 5, where 1 represents "strongly disagree" and 5 represents "strongly agree." This 9-item version includes three statements for each of the three dimensions. The success sub-scale includes statements such as "Some

of the most important achievements in life include acquiring material possessions” and “I like to own things that impress people”. The centrality sub-scale includes items such as “Buying things gives me a lot of pleasure” and “I like a lot of luxury in my life”. The happiness sub-scale includes statements such as “My life would be better if I owned certain things I don’t have” and “I’d be happier if I could afford to buy more things”.

The coefficient of internal consistency is found to be .78 .

2. Social Interaction Anxiety Scale (Mattick and Clarke, 1998)

The Mattick and Clarke's SIAS is a 20 item self-report scale designed to measure social interaction anxiety. Each item is scored on a scale ranging from 0 to 4, where 1 represents “not at all” and 4 represents “extremely”. Items 8, 9, and 11 are reversely scored.

Peters (2000) found that this scale is highly significantly correlated ($r = 0.86$, $P < 0.001$)

Procedure

The current study was approved by the concerned authority. The questionnaire was distributed via Google Forms. The population included 148 individuals belonging to the age group of 18 to 30 years. The purpose of the study was informed. Informed consent was obtained from the participants and confidentiality was ensured before beginning the survey. The social demographic data of the participants were collected including initials of name, age, gender and educational qualification. Finally, the data was collected and statistically analyzed.

Ethical consideration

- Informed consent was obtained from the participants.
- The information obtained from the participants will be ensured privacy /confidentiality.
- The information will only use for the purpose of the research.
- Autonomy or self determination to act independently
- The cultural beliefs or ethnicity of the participants is not harmed in any manner

Statistical Technique Used for data analysis

The normality of the data was checked using SPSS software and based on the information obtained non parametric test was opted. The reliability of the items for the particular sample in the current study was identified and it was found to be Cronbach's Alpha 0.784. Hence to find the relationship between variables Spearman's correlation test was used and Mann Whitney U test was used to find the difference among the variables.

Result and Discussion**Table 1****Comparing Materialism with respect to gender**

	Gender	N	Mean Rank	U	Sig.
Materialism	Female	88	65.0	1827	.012
	Male	56	74.48		

Table 1 shows the Mann-Whitney U test showing the relationships of materialism and social anxiety among male and female category. The mean rank for materialism of female is 65 and male is 82.88. The p value is 0.012. Since the value is significant at 0.05, there is a significant difference in materialism among male compared to females in the present study. It shows that the materialistic nature is more evident in males compared to female. This current study result is congruent with the result of the study conducted by Manchanda. 2015. The study tested the gender difference by comparing mean value of average scores of materialistic scales for males (M=4.7, SD=1.281) and females (M=3.9, SD=.968) and it was found that there was a significant difference in materialistic tendencies of males and females (t151, p=0.014).

Table 2

Comparing Social anxiety with respect to gender

	Gender	N	Mean Rank	U	Sig.
Social anxiety	Female	88	74.48	2220	.371
	Male	56	68.14		

The mean rank of social anxiety for female is 74.48 and male are 68.14. Since the value is not significant, we cannot assume any significant difference for social anxiety among the gender categories. In 2014, Cabello et al. found that social anxiety difference in men and women. The results of the study, point to small yet meaningful differences between men and women in social anxiety. Vinayak and

Arora found that Males were high on social anxiety and materialism as compared to females.

Table 3

Relation between materialism and social anxiety among early adults.

Variable	N	M	SD	1	2
Materialism (1)	144	24.58	6.64	1	.246**
Social anxiety (2)	144	24.10	11.46	.246**	

**Correlation is significant at the 0.01 level (2-tailed)

Table 3 shows the relationship between Materialism and Social anxiety among early adults. The mean score of the variable materialism using the material value scale was found to be 24.58 (S D =6.64) and the mean score of the variable social anxiety using the social interaction anxiety scale was 24.01(S D =11.46). The correlation coefficient for Materialism and Social anxiety among early adults was found to be .246 and the value is significant at 0.01 level. This indicates that there is significant relationship between Materialism and Social anxiety among early adults. Hence the hypothesis which states that there is significant relationship between Materialism and Social anxiety among early adults is accepted. The direction of the correlation is positive. It shows that as the level of materialism increases the level of social anxiety also shows a hike.

This result is congruent with the study conducted by Vinayak and Aurora, 2018. Results revealed that both social anxiety and peer pressure were positively related to materialism.

This may be because people consider materialism as a coping tendency to deal social anxiety (Richins, 2011). As people are alienated from the society, they find means to secure their self-esteem and significance and some young people consider materialistic possession to fill the void of insignificance in their life self-esteem and significance and some young people consider materialistic possession to fill the void of insignificance in their life. Harnish et.al (2018) indicated that social anxiety, specifically, anhedonia, and use of substances to cope predict compulsive buying.

The study conducted by Chan, 2006 found that hierarchical regression analysis indicated that motives of advertising viewing and peer communication about consumption were more important in predicting materialism than age and family communication. Adolescents who reported high level of social motives for ad viewing and adolescents who communicate frequently with peers about consumption were more materialistic.

Summary and Conclusion

Individuals high on materialistic values feel dissatisfied with present possessions and often wish to acquire more or nicer things which they feel could lead to happiness. For materialists, possessions and their acquisition are at the forefront of personal goals and dictate “ways of life”.

The current study found a significant relationship between materialistic behavior and social anxiety among early adults..There is also significant difference in the variable materialism among male and female. But the study couldn't identify any significant difference in the

variable social anxiety among male and female. Vinayak and Arora, 2018 found that social anxiety and peer pressure predict materialism in both male and female adolescents. Males were found to be high on social anxiety and materialism as compared to females. Harnish et al, 2019 found that social support may act as a buffer against the social anxiety compulsive buyers experience and may help reduce feelings of anhedonia and use of substances to control social anxiety.

The significant relationship between materialism and social anxiety among the early adults indicate that social anxiety as a trait is associated with materialism. Even though the relation is clear further studies are needed for the causal factor identifications. Experimental studies can serve as base for further studies. It creates more insight in people regarding the consequences and effect of such behavior.

Social anxiety prevails as a hindrance to the valuable contributions of the youth in the development of the nation itself. So further researches are needed to understand and mitigate the factors that promote this behavior among youth

Suggestions for Further Studies

A more reliable data can be obtained if the study could include a population from different age categories. The present study has only considered early adult category. Otherwise, study could provide the significant relationship of the variables in different age categories and differences among different age categories could also be compared. This study was limited to a small sample. Large sample provide more accurate data. The inclusion of various cultural groups will explore more into the cultural effects of materialism. Materialism is a variable

that is affected to a certain extent by cultural factors. Insight into the cultural influence can sometimes provide the causal factors.

Knowing the correlation between these variables can provide a base for conducting more studies. Thus, more traits associated with the early adults become available for further studies. This is of great significance and such findings prompts for further explorations in the field. Theses information can be used to improve the productivity and well-being of the youth by promoting and preventing the corresponding traits. Understanding the interactions of these variables in early adults can be very beneficial in the unique cultural context of India to understand the causalities and effects of many social and communal issues such as depression, broken relationships etc. Thus, this study can pave way for many related studies.

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Psychological Well Being, Perceived Social Support, and Environmental Identity among Emerging Adults

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Abstract

In this modern World, men are getting enclosed in jobs, studies, finance, self-pleasure and so on and people are likely to receive less support from people around them. The importance for nature and environment is also getting reduced. The man who was having a strong connection with his surrounding nature was healthy in all aspects, emotionally strong and confident, but that is not the case now. This study tries to find the effect of perceived social support and environmental identity in subjective wellbeing among emerging groups. Psychological well-being (PWB) is defined as one's level of psychological happiness/health, along with life satisfaction, and feelings of accomplishment. Perceived social support is support that an individual believes he or she has. Environmental self-identity refers to the extent to which people see themselves as an environmentally friendly person. This is a quantitative research study and uses a descriptive correlation method. The sample included 104 participants between the age group 18-25. The result revealed that there is no significant difference in psychological wellbeing, perceived social support and environmental identity in the undergraduate and postgraduate students and also among students studying in science and other streams. But a significant relationship was found between the variables psychological wellbeing, perceived social support and environmental identity in emerging adults.

Keywords: Psychological well being, perceived social support, environmental identity, emerging adults.

Introduction

Social support and environmental identity tend to determine wellbeing. Men, who are getting enclosed in their job, studies, finance, self-pleasure and so on, are likely to receive less support from people around them. The importance for nature and environment is also getting reduced, man who had a strong connection with his surrounding nature was healthy in all aspects, emotionally strong and confident, but that is not the case now.

This study tries to find the effect of perceived social support and environmental identity in the psychological wellbeing among young people of age group 18-25 studying in various streams.

Wellbeing is a state of happiness and contentment, with low levels of distress, overall good physical and mental health and outlook, or good quality of life (APA). Diener (1984; 2000; Diener et.al., 2002) considers well-being to be the subjective evaluation of one's current status in the world. Psychological well-being (PWB) is one's level of psychological happiness/health, along with life satisfaction, and feelings of accomplishment. It has two important facets: the extent to which people experience positive emotions and the feelings of happiness- also referred to as subjective wellbeing (Diener, 2000). Social support is a network of individuals on whom one can rely for psychological or material support to cope effectively with stress. Perceived social support is support that an individual believes to be available, regardless of whether the support is available. According to Cullen, Wright, and Chamlin (1999) social support is a process of transmitting human, cultural, material, and social capital, between

individuals or between larger social units (communities, states) and its members. Thoits (2011) put forward different dimensions of social support: a) perceived, feeling supported or feeling that support is available or received, reporting that assistance was provided; b) Emotional support (i.e., reassurance of worth, empathy, affection); c) instrumental support (i.e., material aid) and d) informational support (i.e., advice, guidance, feedback) are different types of social support by the source, support from ingroup (primary group) members, secondary groups (school, religious organisations). Whether we are introverted or extraverted, spending time in social settings enhances our levels of wellbeing (Froh et al., 2007). The environment consists of a complex of components including such aspects as the vegetation, water, the weather, buildings, and roads, to which we are exposed in our everyday lives, have a specific functionality. This can be referred to as the “biophysical environment.” As we move through an environment a holistic process of sensory input and its processing occurs within the individual to interpret the new experience with an impact on the wellbeing of the person. Environmental identity refers to the extent to which the Balance-congruity principle states that first order link exerts pressure on the cognitive system resulting in equal strengths of association. Thus, individuals with a strong positive self-nature association, also have strong positive self-valence associations (self-esteem) and strong positive nature-valence associations.

Studies have found that social support or one’s perception that a network of people are present as a support for them and a close connection and experience with nature and natural environment is positively associated with wellbeing.

Review of Literature

Priorities of this modern world are social media, online or computer games, job, status, position and so on, which may be sometimes disconnecting them from enjoying nature and its beauty and from a network of support.

Family, peer, and educational social support systems were discovered to have mediating and moderating effects on the association between social exclusion and psychological wellness, with a greater impact on female students from the study by Arslan (2018). Participants were 407 students between the ages of 11 and 18. Study by Batool and Ahmad (2013) confirmed that perceived social support is a significant predictor of psychological well being among teenagers. Urdu versions of Multidimensional Scale of Perceived Social Support (MSPSS) and Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) were administered to 212 teenagers between the age 13 to 19 years. Gardner and Webb (2017) studied the associations of perceived family and peer social support, self-esteem, and psychological well-being within the framework of several family contextual factors. 334 adolescents participated in the study and it was found that Family support showed direct and indirect associations with depression, anxiety, stress, and well-being through self-esteem, while peer support showed a direct positive association only with well-being. Wang and Sound (2008) studied the role of generational status, self-esteem, academic self efficacy, and perceived social support on psychological well-being in 367 undergraduate students. Rosenberg Self-Esteem Scale (RSES), College Self-Efficacy Inventory (CSEI), Social Support Appraisals (SS-A) Stress subscale of the Rhode Island Stress and Coping Inventory,

Brief Symptom Inventory and Satisfaction with Life Scale (SWLS) were the scales used.

Findings were as follows: self-esteem, perceived support from family, and perceived support from friends were significantly and positively associated with students' well-being; self-esteem and perceived support from family seemed to have different effects on different specific dimensions of well-being; generational status moderates the link between stress and perceived support from family. Whether loneliness and social support predicts psychological well-being in awaiting-trial inmates was the study topic of Mefoh, Odo, Ezeh and Ezeah (2016). There were 300 participants (200 males, 80 females) between the ages 18 and 69 and used the Los Angeles loneliness scale, multidimensional scale of perceived social support (MSPSS) and psychological well-being scale (PWB-S) in the study. Loneliness and social support is found to predict psychological well-being.

Study by Zhang, Howell, and Iyer (2014) concluded that individuals who perceive nature's beauty appear to reap the most positive benefits from being connected with nature. A cross-sectional survey indicated that the strength of association between nature exposure and subjective well being were like those between social connectedness and subjective wellbeing indicating the importance of the local environment in wellbeing. Howell, Dopko, Passmore, Buro (2011) examined the relation between nature connectedness, well-being, and mindfulness among 452 psychology students. Connectedness to Nature Scale, Nature Relatedness scale, Allo-Inclusive Identity Scale & Mindful Attention Awareness Scale were used and the result indicated

that nature connectedness, well-being, and mindfulness were significantly interrelated and higher degree of connectedness to nature were associated with greater well-being and greater mindfulness. Study by Hinds and Sparks (2009) found that greater frequency of experience was associated with higher levels of environment-related identity, greater meaning obtained from being in the natural environment was associated with more positive affective well-being and rural participants reported greater frequency of experience: greater personal meaning, more positive affective well being, and stronger environment identity. 36 undergraduate psychology students from different universities, within the age range 18-29 participated in the study. The relationships between the Connectedness to Nature Scale (CNS), psychological well being, mindfulness, and outdoor recreation was studied by Wolsko and Lindberg (2013). Higher scores in Connectedness to Nature Scale indicated greater trait mindfulness, more participation in appreciative outdoor activities, and high scores on multiple measures of both hedonic and eudemonic aspects of well-being. More connection with nature tends to have moderately strong relationships with flourishing, subjective vitality, and positive emotions, as well as lower levels of negative emotions.

The studies have confirmed that social support is an important determinant of psychological well being, but these studies were mostly done in minority groups in society, among adults, adolescent population, psychology students, undergraduate students and people with physical and psychological illness and people in Spain, Ghana, Russia, Jamaica, UK, twin pairs, British military personnel, single-parent family. The studies that analyse perceived social support is very

few. Environmental identity also has considered important for psychological well being, but only few studies have been conducted

Method

The study used descriptive correlation research design. 104 emerging adults who are studying in science and other fields, were the participants of the study. The sampling method used was purposive sampling technique.

We used Multidimensional Scale of Perceived Social Support (MSPSS), General Well Being Scale (GWS) and Environment Identity Scale (EID) for assessing perceived social support, psychological well being and connectedness to environment and nonparametric tests like Spearman rank correlation to assess correlation between variables and Mann- Whitney U test to find significant difference.

Result

Data analysis has provided the following results:

Table 1

Comparison of the experience of psychological well being, perceived social support and environmental identity among students of science and other streams

Variables	Stream	N	Mean	U	p
MPSS	Science	68	56.87	927.000	.042
	Others	36	44.25		
GWS	Science	68	54.35	1.098	.391
	Others	36	49.01		
EID	Science	68	56.14	976.500	.091
	Others	36	45.62		

The table indicates a significance of 0.042, 0.391 and 0.091 ($p > .005$). Therefore, there is no significant difference in the psychological wellbeing experienced, environmental identity and perceived social support among the students in science and other streams, hence the null hypothesis, there will be no significant difference in the psychological wellbeing, perceived social support and environmental identity of students in science and other streams (H02) is accepted.

Table 2

Relationship between psychological well being, perceived social support and environmental identity

Variables		MPSS	EID
GWS	Spearman correlation coefficient	.010	-.100
	Sig. diff.	.920	.310

**. Correlation is significant at the 0.01 level (2-tailed).

From table 2, we can say that there is a positive correlation between psychological well being, perceived social support and environmental identity. They have a perfect positive correlation, significant at 0.01 level (2 tailed). Thus, the null hypothesis, there is no significant relationship between psychological well being, perceived social support and environmental identity, is rejected.

Rueger, Malecki, and Demaray (2010) studied how religious identity, social support, social connectedness, and perceived discrimination influence psychological well-being (PWB) on 382 first-generation young adult migrants of the Middle East between 20–39 years. Social support has a strong, direct and indirect impact on

psychological well being, through perceived discrimination and social connectedness with ethnic communities (SCETH). Howell, Dopko, Passmore, Buro (2011) examined relation between nature connectedness, well-being, and mindfulness among 452 psychology students. Positive correlation was found between nature connectedness and psychological and social well-being.

From all the studies we reviewed we could see that social support, perceived social support and connectedness with nature has a role in people's psychological well being. The social ties we have, support received from family and significant others, being part of a group, interaction with nature, participation in outdoor activities are various factors that increase our psychological well being. The present study also reveals the significant relationship between perceived social support, and environmental identity. Our interaction with other people can lead to greater perception of social support, thus greater wellbeing. Being closer to nature and the resulting experience of pleasure will also lead to wellbeing.

Implications of the study

Psychological wellbeing is one's level of psychological happiness/health, along with life satisfaction, and feelings of accomplishment. It is essential to lead a healthy life, it is a sign of good mental health. In this study they tried to understand the importance of perceived social support and the natural environment in determining a person's psychological wellbeing. The findings of the study can be effectively utilised for making individuals aware about the benefits of being close to nature and of having a support system. People can be

made aware of the effects of having a positive attitude. The findings can be used to cultivate psychological wellbeing among individuals to facilitate life satisfaction, self-acceptance, self- realisation, happiness, personal growth, autonomy, and environmental mastery.

Conclusion

Psychological wellbeing is one's level of psychological happiness/health, along with life satisfaction, and feelings of accomplishment. It is essential to lead a healthy life, it is a sign of good mental health. The study revealed that there is a significant relationship between the variables psychological wellbeing, perceived social support and environmental identity in emerging adults. But found that there is no significant difference in the psychological well being, perceived social support and environmental identity of students studying in science and other streams. The findings of the study can be effectively utilised for making individuals aware about the benefits of being close to nature and of having a support system.

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