

Development and validation of a questionnaire for assessment of happiness with reference to behavioral determinants of health. The Indian happiness rating scale III

Abstract

Background: Recent surveys indicate that the prevalence of happiness is more common in developed countries compared to developing countries, which is considered due to better availability of affordable medical care, more satisfaction in life and economic development. It is possible that chronic anxiety, aggression and depression may be associated with lack of happiness which may predispose poor social, and physical health, leading to unhappiness. This study aims to develop and validate questionnaire for assessment of happiness with greater accuracy, in the behavioral risk factors, so that the same can be used as a tool in the population studies.

Subjects and methods: This cross-sectional survey was conducted at Halberg Hospital and Research Institute, Moradabad, India. All subjects; 980 urban (495 men and 485 women), 900 rural (510 men and 390 women) above 25 years of age were randomly selected and recruited from urban and rural populations. Clinical data as well as risk factors were recorded with the help of case record form using the validated questionnaires. Assessment of happiness was made by a new more detailed modified questionnaire involving happiness of mind by including questions related to social, emotional and psychological health behaviours with reference to behavioural risk factors.

Results: The prevalence of happiness was 62.2% (n=612) among urban and 63.2% (n=569) among rural subjects. The prevalence of very happy and satisfied (20.2 vs 22.2 %), moderately happy and satisfied (23.7 vs 22.9 %) and the modestly happy and satisfied (18.4 vs 17.9 %) were not significantly different among urban and rural subjects. It seems that the accuracy of the Indian Happiness Rating Scale III is good enough to assess happiness in other populations. The prevalence of behavioral risk factors; alcoholism, alcohol intake in moderation, sedentary behavior, western type diet intake, sleep disorders, emotional stress disorders, breakfast missing, late night dinner, night shift work, were significantly greater among urban subjects compared with rural subjects. However, among subjects with happiness, the frequency of moderate alcohol intake was significantly greater compared to subjects with no happiness among urbans. There were no gender differences in happiness.

Conclusions: It is possible that this modified questionnaire with 16 attributes, may accurately assess the status of happiness and successfully used for assessment of happiness rates in urban and rural populations. The questionnaire allowed us to identify approximately two third subjects with happiness, among both urban and rural populations. Similar prevalence of happiness among urban and rural subjects, despite more behavioral risk factors among urbans, indicate that economic development may not be necessary for happiness. Further studies are necessary to find out the role of happiness in relations to health and behavioral risk factors.

Keywords: western diet, sedentary behavior, mastication, emotion, stress

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Introduction

The Global Burden of Disease (GBD) study reported that the estimated Years of Life Lost for mental disorders were extremely low, indicating that mental disorders do not reflect premature mortality.¹ It seems that there is scarcity of evidence on the role of emotional stress in the pathogenesis of diseases that can impact life expectancy. Psychological stress, has an important pathophysiological consequence, causing anxiety, anguish, sadness, unhappiness, depression and mood disorders which may predispose risk of cardio-metabolic diseases (CMDs) including cardiovascular diseases (CVDs) and other chronic conditions.¹ Stress also increases the prevalence and severity of several other behavioral risk factors such as insomnia, as

well as cardio vascular risk factors, including hypertension, diabetes mellitus, and obesity.²⁻⁴ Emotional stress can manifest with increased sympathetic activity and symptoms of mental and behavioral changes along with underlying inflammation which predisposes CMDs and other chronic diseases.⁵ There is evidence that satisfaction in life, happiness, culture and depression may have interactions and may influence the pathogenesis and risk of these diseases.⁶⁻⁸

A global study by IPSOS in India revealed that happiness has 9th rank depending up on grades of happiness, involving 28 countries.⁹ The results showed that the prevalence of happiness is higher in higher income countries; Australia and Canada tied at the top spot (at 86%) that have emerged as the happiest nations of the world,

followed by China (83%), Great Britain (82%), France (80%), USA (79%), Saudi Arabia (78%) and Germany (78%).⁹ These countries are the eight markets preceding India which is just below these countries (77%). The main criteria used to assess happiness were personal safety, living conditions, physical wellbeing, and security.^{9,10} Friends, feeling in control of life, emerged as top determinants of happiness in life. These findings indicate that the present criteria of assessment of happiness need modification because people may not have personal safety, better living conditions and security, still they could be happier compared to people living in developed countries. Buddha said ages ago, "there is no path to happiness, happiness is the path (250 BCE).

It seems that the characteristics for identification of happiness are not confined to higher income and safety and housing, durables, and social position, because in India, such attributes are not very common compared to Argentina, Spain and Russia, who have lower state of happiness.⁹ It is crucial to assess the attributes that make people of developing country, happier, despite poverty. Lowest in happiness scale were Argentina (34%), Spain (46%) and Russia (47%), among the 28 markets and globally and happiness levels have decreased in 2019, as compared with 2018 in India, with a 6 per cent drop (from 83% in 2018 to 77% in 2019). In previous surveys, it has been found that the accuracy of the questionnaires can be improved successfully, by its modification, which may be validated for the identification of happy people in rural and urban subjects¹¹ as well as in various social classes.¹² Although rural subjects are more poor than urban subjects, but the prevalence of happiness was similar and social classes 2 to 4 had similar level of happiness compared with social class 1 subjects.

Since, happiness appears to be important for health promotion as well as for prevention of CVDs and neuro-psychiatric diseases,³⁻⁸ there is a need to develop a tool, to identify happiness, more accurately which may be used in the population studies. This study aims to develop and validate, a more accurate questionnaire for the assessment of happiness, with reference to behavioral determinants of health, after adding some more attributes in the questionnaires.

Subjects and methods

The subjects were recruited for this survey, after the written informed consent. Clearance was given by the ethic committee, Halberg Hospital and Research Institute, Moradabad, India. All subjects randomly selected, aged 25 years and above were from urban and rural areas, based on voters list.¹³⁻¹⁵ If the subject was <25yrs or not available, the random number was assigned to next subject of the list. We approached 2422 urban and 1769, rural persons from few villages. Interestingly only, 9 % subjects did not agree for inclusion in the survey. Rest of the participants gave their consent to be part of the survey. Of all the subjects; Only 980 urban (495 men and 485 women), 900 rural (510 men and 390 women) randomly selected participants form the material for the assessment of happiness.

Collection of data

A case sheet was used to collect data on age, sex, height, weight, waist girth, as well as family and past history of diseases. Validated Questionnaires were revalidated before use for assessment of behavioral factors, tobacco and alcohol intake, diet and lifestyle factors and depression and mood disorders.¹³⁻¹⁸

Criteria of happiness

The assessment of happiness was made by a new instrument that is modified from another questionnaires considering feeling of the participants, with no consideration of other behavior.^{11, 12, 19-22} It was

considered a Emotion Questionnaire because it examines emotional wellbeing indicating perceived happiness on a happiness scale.¹⁰ It has two components; a scale measuring happiness/ unhappiness of the subjects ranking descriptive phrases on a scale of 0–10. Interestingly, the instrument used in this survey included 16 attributes. These attributes are used to test all the subjects, to give optimal time or number of times that may be adequate to assess, indicating happy, unhappy or neutral which are based on a scale of 0-10. There is adequate reliability and validity making it more explicit with improved strength of the questionnaire due to inclusion of greater number of behavioral factors responsible for confounding that are included as attributes of happiness (APPENDIX I).

Criteria of diagnosis of behavioral determinants of health

The criteria of diagnosis of behavioral risk factors were based on previous studies.¹³⁻¹⁸ It is difficult to assess tobacco intake, because it is consumed in various forms. Cigarettes, pipes, raw tobacco and chewing tobacco are all commonly consumed and some people use tobacco in more than one form.¹⁵ We therefore categorized users of any form of tobacco as smokers as was done in previous studies. Individuals who admitted to ingesting alcohol more than once a week were categorized as alcohol consuming. Moderate alcohol intake was considered if the intake was 10 drinks per week. Alcoholism was considered if the intake was more than 10 drinks/week. Physical inactivity was diagnosed if there is no spare time exercise, without walking for lesser than 14.5 Km/week or climbing lesser than 20 flights of stairs in 7 days. The performance of no additional exercise (<300 K calories /day) on 5 days out of 7days was also considered sedentary behavior.¹⁵ Validated questionnaires were used to assess type A behavior, depression and mood disorders, chronic anxiety disorders, mastication, optimism, by the psychologist.¹³⁻¹⁸

Food measures, food models, and food portions were shown to subjects for the assessment of daily food intake. Eating of >300g/day of western type of foods: cakes, biscuits, bread, pastries, syrups and other junk foods was accepted as western type food consumption. The intake of fruits, vegetable, whole grains, millets, porridge, spices, and nuts (>400g/day) was accepted as eating of Indo-Mediterranean diet. A decline in cognitive activity was considered if the reading of any written material such as newspapers or writing of any other article was absent. Disruption of sleep was diagnosed if the duration of sleep in the night was of <6 hours duration and/or increased awakening >3 times, during sleep in the night or working in the night shift. Total education of <5 years in school was considered as low education. Presence of anxiety disorder was reported if there was excess of thinking or inability in thinking and more anxiousness during talking, or there was occupational stress or financial stress, causing difficulty in sleep, for minimum 4 weeks or more. Having records of treatment of anxiety and depression was also considered anxiety disorder. The practicing meditation and yoga or regular active prayer, for >30 min at least 5 days in a week was considered as meditation and yoga practice. Energy restriction or fasting (fruits, and sago < 800 calorie /day maximum), once weekly was accepted as practice of energy restriction or fasting. Lack of chewing of foods accepted if the number of chewing was < 20/ bite as reported earlier.²³

Physical examination

The diagnosis of risk factors and diseases was based on WHO criteria. Height and weights were measured with minimal clothes and no shoes. The weight was measured by a calibrated machine in kilo grams up to minimum of 0.5 Kg. Measurement of height was made

in centimeters without shoes with subject standing on his back side, close to measuring stand. Calculation of body mass index (BMI) was made and obesity was accepted as a BMI of 30 kg/ m² and above, overweight when body mass index 25 kg/m² to 29.9 Kg/M2.

Statistical analysis

The continuous data are given as mean 1 standard deviation and percentages as prevalence rate. The classification of participants was made on the basis of grade of happiness. The association of various grades of happiness with other risk factors and protective factors was calculated by chi square test. Only p values <0.05 with two tailed t test are considered significant.

Results

There were 980 urban men (50.5%) and the rural men were 900 (53.6%) and rests were women. No significant differences were observed in the mean age among urban (44.5(10.5) vs 42.6 (9.5) years) and rural participants, respectively. However, urban participants had greater mean body weights (61.8 (11.7) vs 56.7 (8.9) Kg) and body mass index (22.5 (2.3) vs 21.6(1.9) Kg/M2) compared to rural participants respectively.

Table 1 reveals the grades of happiness among urban and rural participants. The rate of prevalence of happiness was 62.2% (n=612) among urban participants and 63.2% (n=569) among rural population.

Table 1 Grade of happiness based on scores, among urban and rural subjects

Grades and Scores of happiness	Urban subjects, (n=980)	Rural subjects (n=900)	Total, n=1880
Very happy and satisfied, 101-160	198(20.2)*	200(22.2)*	398(21.2)*
Moderately happy and satisfied,51-100	232(23.7)*	206(22.9)*	438(23.3)*
Modestly happy and satisfied, 21-50	180(18.4)	161(17.9)	341(18.1)
Total	610(62.2)	567(63.2)	1177(62.6)
Neutral, <21	370(37.7)	333(37.0)	703(37.4)

*=p values were obtained by Chi square test. Values are number (%).

Table 2 Behavioral risk factors of chronic diseases among urban and rural subjects

	Urban subjects (n=980), n (%)	Rural subjects (n=900) n (%)	Total subjects n=1880, n (%)
Tobacco intake (>once/week)	271(27.6)	233(25.88)	504(26.8)
Alcoholism (>10 drinks/week)	34(3.47)*	3(0.33)	37(1.97)
Alcohol intake in moderation (10 drinks/week)	164(16.73)*	44(4.9)	208(11.1)
Sedentary behavior	474 (43.4)*	297(33.0)	771(41.0)
Western type diet intake	488 (49.8)*	238(26.4)	726(38.6)
Sleep disorders	337(34.38)*	161(17.9)	353(18.8)
Emotional stress disorders.	352(35.9)*	107(11.88)	459(24.4)
Breakfast missing.	250(25.5)*	49 (5.44)	299(15.9)
Late night dinner	466 (47.55)*	136 (15.11)	602(32.0)
Night shift work	35(3.57)*	22 (2.44)	57(3.0)
Low cognitive activity	114(11.6)	130 (14.7)	244(12.97)
Lack of mastication of foods.	312(31.8)	264 (29.33)	576(30.6)
Happiness	610 (62.2)	567 (63.2)	1177(62.6)

*=P<0.01, P value was obtained by Chi square test by comparing percentages in the urban and rural subjects.

The overall prevalence of happiness was 62.6% (n=1181) Table 1.

The prevalence of very happy and satisfied (20.2 vs 22.2 %), moderately happy and satisfied (23.7 vs 22.9 %) and the modestly happy and satisfied (18.4 vs 17.9 %) were not significantly different in the urban and rural populations Figure 1.

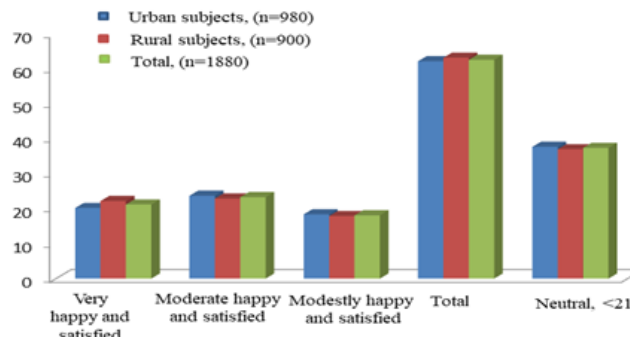


Figure 1 Grade of happiness based on scores, among urban, rural and total subjects.

The prevalence of behavioral risk factors of CVDs and other chronic diseases is given in Table 2.

The prevalence of alcoholism, alcohol intake in moderation, sedentary behavior, western type diet intake, sleep disorders, emotional stress disorders, breakfast missing, late night dinner, night shift work, were significantly greater among urban subjects compared with rural subjects (Table 2).

Prevalence of happiness in relation to behavioral factors are shown in Table 3. The intake of tobacco was comparable among both, rural and urban subjects, and among subjects with and with

no happiness. The frequency of moderate alcohol consumption was significantly more in subjects with happiness, compared to subjects with no happiness in the urban group. The frequency of sedentary behavior was significantly lower among participants with happiness compared to those with no happiness, respectively, both in urban and rural populations, indicating that physical activity may be protective against unhappiness. There were no gender differences (Table 3), Figure 2.

Table 3 Prevalence of behavioral risk factors among urban and rural subjects with and without happiness

	Urban,		Rural,	
	Happiness (n=610), n (%)	No happiness (n=370), n (%)	Happiness (n=567), n (%)	No happiness (n=333), n (%)
Tobacco intake (>once/week)	168(27.5)	103(27.8)	115(20.3)	118(35.4)
Alcoholism (>10 drinks/week)	12(2)*	22(5.9)	2(0.4)	1(0.3)
Alcohol intake in moderation (10 drinks/week)	136(22.3)*	28(7.6)*	28(4.9)	16(4.8)
Sedentary behavior	266(43.6)*	208(56.2)	204(36)	93(27.9)
Western type diet	305(50)	183(49.5)	167(29.5)	71(21.3)
Sleep disorders	153(25.8)	184(49.7)	68(12)	56(16.8)
Emotional stress disorders.	122(20)	123(33.2)	72(12.7)	35(10.5)
Breakfast missing.	125(20.5)	125(33.8)	18(3.2)	31(9.3)
Late night dinner	245(40.5)	221(59.7)	112(19.8)	24(7.2)
Night shift work	25(4.1)	10(2.7)	12(2.1)	10(3.0)
Low cognitive activity	114(18.7)	312(84.3)	85(15)	45(13.5)
Lack of mastication of foods.	312(51.2)	223(60.3)	156(27.5)	108(32.4)

Values are n (%), *= $p < 0.01$, P values were obtained by Chi square test by comparing percentages of risk factors among subjects with happiness and no happiness.

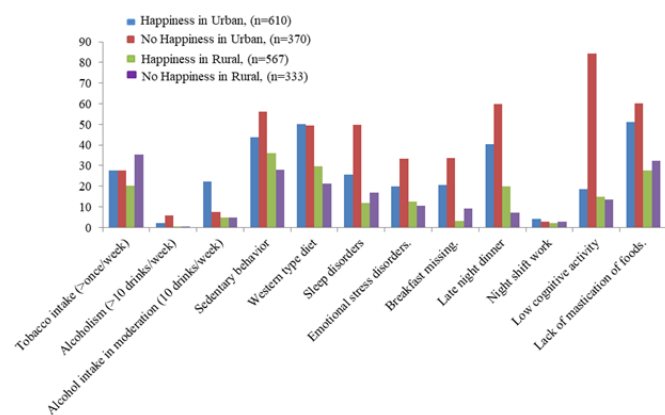


Figure 2 Prevalence of behavioral risk factors among urban and rural subjects with and without happiness.

Discussion

This study shows that by using this questionnaire, it has been possible to identify the prevalence of happiness among 62.2% (n=610) urban and 63.2% (n=567) rural subjects, with an overall prevalence of happiness among 62.6% (n=1177) subjects. Although, there is no significant change in the prevalence of happiness by using new modified instrument. However, the advantage is that it has greater strength due to the inclusion of more attributes of happiness. The strength of the instrument may be crucial for accuracy and specificity for assessment of the risk which may be useful in the prevention of CVDs and other chronic diseases. *It seems that other behavioral factors such as sedentary behavior, night shift work etc., may also cause variations in happiness in various social classes.*

There is a scarcity of evidence on prevalence of happiness among random samples in the populations. In a previous survey, including nonrandom samples from 28 countries, 1000 subjects or more answered online questionnaire.² This survey found that the prevalence of happiness among Indians was 77%.² The attributes of happiness considered were; living conditions (89%), physical well-being (88%), personal safety and security (88%), friends (87%), a feeling in control of my life (86%), feeling my life has meaning (86%), my hobbies/interests (85%), and well-being of the country (85%).² It has been presumed that most people would be happy if they are satisfied with living conditions, good economic status and good health, friends and social circle and a purposeful life, which are open to bias. It is clear from our results that the present instrument, the Indian Happiness Rating Scale III, can be successfully used with better accuracy for assessment of rates of happiness in urban and rural areas of north India.¹² The accuracy of this tool has been already reported *showing that rate of happiness was higher among subjects with SES of 2 to 4, compared to SES 1 and 5, respectively.*¹² *SES class 1 are more rich and can buy too much of ready prepared foods and automobiles, that may predispose CVDs, which may not allow people to be happy, despite increased wealth. In social class 5, poverty and enormous compelling occupational labor may not allow the people, to be so much happy, as social class 2-4 subjects.*

India ranks 4th in happiness among 32 countries, IPSOS Global Happiness Survey (Life satisfaction across the world. Personal relationships, knowledge, love, social status, being close to nature, fitness, economic health of country make Indians happy.²⁴ IPSOS Global Happiness Survey that captures Life Satisfaction Across the World shows majority of global citizens polled are happy (73%) and India was placed 4th in the pecking order, with 84% of the citizens polled claiming to be happy. The top 3 happiest markets emerging were China (91%), Saudi Arabia (86%) and Netherlands (85%) Figure 3.

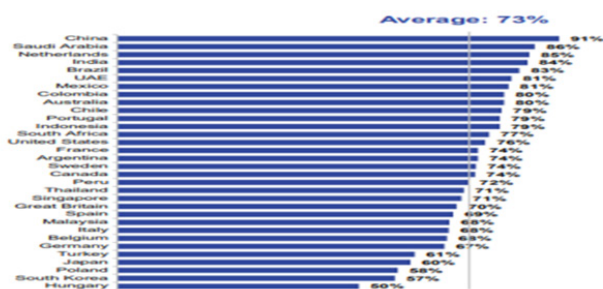


Figure 3 Happiness index according to Ipsos global happiness survey. (Adapted from reference 24).

The World Happiness Report 2023, found that Finland has been named the happiest country in the world, second Denmark, third Iceland, Israel is forth and India ranks 126th.²⁵ According to this survey India lags behind Nepal (78), China (74), Bangladesh (118), Sri Lanka (112) and Pakistan (108). The data indicate that the questionnaire used for assessment of happiness do not bother to assess the happiness of mind, although it is annual publication of the United Nations Sustainable Development Solutions Network. It is based on global survey data from 150 countries on income, health, social support, freedom, generosity, and absence of corruption in the country.²⁵ It seems that corruption in the country is indirectly related to happiness hence people were less happy in the countries, despite corrupted government in India, although corruption is decreasing in India. A recent poll by Gallup found that 85% of Americans are “satisfied” with their personal lives, and 14% are dissatisfied.²⁶

The main attributes of happiness were, positive thinking, mindfulness, positive health behaviors such as meditation, no night working, doing no harm to others, optimism, optimal mastication, eating before sunset, life satisfaction positive behavior, social position and prosperity, knowledge and motivation for health education and behavior. Some of these attributes have also been included in the questionnaire used by IPSOS²⁴ and world happiness report.²⁵ as well as by other studies.^{26,27} The happiness agenda in United States in the next 10 years as per Happiness Report 2023 is to measure happiness in a nationally-representative sample of people how satisfied they are with their lives.²⁷ It seems that a population will only experience high levels of overall life satisfaction if its people are also pro-social, healthy, and prosperous. This means that happiness may be an attribute of total health, which means, emotional, social, physical, and spiritual wellbeing of the subjects and of population health. A recent meta-analysis included 155 articles, encompassing studies from over 100 countries and 44 cultures.²⁸ The determinants of happiness were divided into three broad categories; Health, Hope, and Harmony. The predominant happiness determinants were mental, emotional, and physical well-being, a purposeful holistic work–life balance, nurturing social relationships, caring for self and others, and being in harmony with one’s culture, traditions, community, religion, and environment. This study engendered an “Integrated Model of the Determinants of Happiness” to provide a universally applicable conceptualization of the happiness construct. By examining studies on determinants of happiness across the globe in the past 90 years, this review uncovered that happiness constitutes multiple determinants that fall under three major categories given above.²⁸

The ancient Greek philosopher Aristotle proposed more than 2000 years ago, “Happiness is the meaning and the purpose of life, the

whole aim, and the end of human existence” and they still ring true today.²⁸ In Aristotle’s Nicomachean Ethics, happiness is described as the human good that we all aim for its sake alone, and Freud emphasized that happiness is something we strive towards, desire to attain, and maintain throughout our lives.²⁹⁻³¹ In other words, people should have high levels of, what Aristotle called ‘eudaimonia’. It seems that what Lord Buddha said, ages ago (250 BCE), may be correct for many populations and that “There is no way to happiness. Happiness is the way”. Some experts have described the history of happiness,³² dispositions of happiness³³ and differences in happiness and wellbeing.³⁴ Previous studies have found that mental stress such as anxiety, chronic stress and depression can predispose CVDs^{35,36} which may cause unhappiness due to diseases. Experimental study published in Nature, revealed that activating positive memory engrams suppresses depression-like behavior due to activation of neurons in the hippocampus, indicating that happiness may act by influencing hippocampus.³⁷

Previous studies have reported that happiness may be associated with stress hormones and certain neuronal circuits regulating pleasure and happiness.^{38,39} It seems that stress is a normal response of human behavior to the environmental pressures of daily life which could be acute, chronic and episodic. Other emotional responses are worry, fear, anger, sadness and other emotions which are all part of life. However, if the stress that underlies these emotions interferes with the ability to do the routine work, then this stress has become unhealthy and may create unhappiness. There is evidence that harmful behaviors and attitudes as well as cultural factors involve progressive decline in physiological functions, immunological functions, neuroendocrine dysfunction, cognition and attitudes towards healthy behaviors and health.^{6-8,38,39} These behavioral factors may be crucial in the inculcation of happiness and well-being that are helpful in providing emotional and spiritual health for promotion of total health. It seems that humility and emotional as well as psychological well-being may have temporal and concurrent relationships in the promotion of happiness.⁴⁰ It is likely that having a dream for achieving a bright future could create feelings of happiness which may be useful in the promotion of health wellbeing.⁴¹ On the other hand, anxiety and mood disorders such as depression and aggression as well as fear can predispose poor physical and social health that may cause unhappiness.⁴² However, protective healthy behaviors, such as mindfulness, meditation and yoga, regular active prayer, moderate physical activity, Mediterranean type diets, probiotics, mastication during eating, optimism and sexual activity, can provide better emotional health and wellbeing. It is possible that regular sexual activity and anxiety free sex is with a primary sex partner is proxied by emotional and physical satisfaction, causing happiness. Whereas, maximizing number of sexual partners, engaging in extramarital sex is negatively related to happiness.⁴³

The underlying mechanism of fear, anxiety and aggression may be increased flutter in the amygdalar activity,⁴² whereas there may be increased release of neurotransmitters; serotonin, dopamine, endorphins and oxytocin, that may be responsible for the feeling of happiness.⁴⁴ It is hypothesized that chronic stress of short duration as well as depression and aggression could be decreased and prevented via practice of healthy behaviors causing inculcation of happiness. Therefore, there is a need to develop and validate a questionnaire for assessment of happiness. It is possible that this questionnaire could be used for assessment of happiness in epidemiological studies. It may also be used in clinical trials to examine the effects of intervention on wellbeing and happiness.

Limitations

Utility and necessity of analysis

The main justification for this analysis of health behaviors in this study is to more accurately assess the status of happiness by improving the strength of the questionnaire. It also emphasizes the association of happiness with certain behavioral risk factors and protective factors, which may be utilized for assessment of social, emotional and physical health of the individual. There should be more time as well as more education among people, for the assessment of exact details of all the behaviors. Regression analysis may be conducted to further examine the association of behavioral factors with happiness. We could not collect objective data via functional magnetic resonance imaging to locate brain areas such as amygdala and hippocampus, that may be involved in happiness, fear and anxiety.^{42,45-48}

Conclusion

This cross-sectional survey showed that our questionnaire has improved strength and can accurately identify happiness. The prevalence of happiness appears to be optimal in India. This enlarged questionnaire may be successfully applied for assessment of rates of happiness in rural and urban populations. The questionnaire allowed us to identify two third of the subjects with happiness, including urban and rural populations. The prevalence of behavioral risk factors; alcoholism, alcohol intake in moderation, sedentary behavior, western type diet intake, sleep disorders, emotional stress disorders, breakfast missing, late night dinner, night shift work, were significantly greater among urban subjects compared with rural subjects. There were no gender differences in happiness. Moderate intake of alcohol, cuddling, sexual activity, physical activity may be in favor of happiness. Further analysis of data in our study, and long term follow up are necessary to confirm our findings. Future studies in larger randomly selected populations and long follow up would be necessary to find out the prevalence of happiness and its determinants in the population. Randomized, controlled trials are urgently needed to demonstrate the role of happiness in reducing anxiety and depression as well as in preventing CVDs.

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Conflict of interest

The authors declare that there is no conflict of interest.

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