

STRESS, SENSE OF BELONGING AND INTEGRATION OF COMMUNITIES: A Study of Metropolitan Areas in Canada

Dr. Shiv Talwar, Spiritual Heritage Education Network Inc., Kitchener-Waterloo, Ontario, Canada

ABSTRACT

Traditional spiritual wisdom defines stress as the response of the body-mind complex to a perceived gap between our actual and desired states of being. Stress is an unavoidable malady but manageable to minimize suffering of its myriad personal and social consequences. Traditional wisdom offers effective non-pharmaceutical strategies for personal management of stress.

One of the consequences of stress is related with collective harmony. A state of low stress is regarded as conducive to harmonious connectivity, integration and sense of belonging to the collective. On the contrary, a state of high stress is regarded as the breeding ground for self-centeredness, disharmony, alienation and fragmentation. An ideal of zero stress is presented for a sense of belonging anywhere in the universe with fragmentation in none; on the other hand, a state of very high stress as a prelude to belonging nowhere and integrated in none.

Statistics Canada publishes data for 33 census metropolitan areas on the percentages (x) of their people with stress and another (y) of those with strong sense belonging to their communities. The availability of these nationwide numbers provide an opportunity of verifying the validity of the ancient spiritual ideas about stress in the modern environment.

The traditional wisdom on stress about the available numbers can be expressed as a model from antiquity. The percentage of people with strong sense of belonging is the percentage with low stress. Theoretically, this number when added to the percentage with high stress should equal 100. The study reported herein is undertaken to see if there is a correlation between this model expressing ancient wisdom and a statistical model expressing the census data.

The study examines the census data and arrives at the related statistical model algebraically expressed as $y = 89.041 - 1.0757x$. With the magnitude of the coefficient of correlation of 0.7767, this model expresses the census data with remarkable statistical accuracy.

It is clear from a simple look at the statistical model of the actual Canadian census ($y = 89.041 - 1.0757x$) and the theoretical model of ancient wisdom ($y = 100 - x$) that the ancient spiritual wisdom on stress is as applicable in Canada today as it was in the early times.

The stress management strategies of antiquity are now supported by modern neurophysiological sciences. Thus, this study indirectly makes a strong case for a systemic use of time proven science supported stress managing strategies for personal as well as social welfare.

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INTRODUCTION

This study is undertaken to investigate whether the position of ancient wisdom on stress is borne out in the light of numbers presented by Statistics Canada. Reference is made to the tables of data entitled “Health indicator profile by census metropolitan area, two-year period estimates¹.” These tables contain data for the 2011-2012 years on the percentages of the inhabitants perceiving significant life stress and possibly stress related disorders.

Stress related disorders are numerous. Some of them fall in the category of health, mental as well as physical while the others in the categories of learning, emotions, thinking, and behavior both personal and social. One of the social disorders listed in these tables is the lack of belonging felt by the inhabitants of the metropolitan areas to their respective local communities.

Lack of belonging expresses fragmentation and a lack of connection. Conversely belonging expresses integration and connection. The tables contain percentages and numbers of people in the communities with a “Sense of belonging to local community, somewhat strong or very strong”. These numbers obviously relate to people who feel well integrated into the community.

For stress, the tables show numbers for “Perceived life stress, quite a lot (15 years and over)”. Stress being defined as the response of the mind-body complex to the perception of a gap between the actual state of being of a person and that desired by him/her, persons perceiving quite a lot of stress are likely to be significantly dissatisfied with their lot and alienated from their community. It is just logical to conclude that they feel less of a connection with the community in which they live and carry a feeling of disconnection and fragmentation from it.

TRADITIONAL WISDOM

Traditional spiritual wisdom has a concept of self-realization defined as the state of a person in which the person realizes that his/her personal core existence is the as that of all beings in the universe and of the universe as a whole. He/she knows that what makes the universe tick is the same as what makes him/her tick and he/she feels one with the universe and all its beings. A self-realized person is also called a *perfect* person who has achieved *tawhid* (oneness), *Buddhahood*, *nirvana*, *liberation*, *salvation*, or *kingdom of God within*.

Patanjali² prescribes an uprooting of stress as the necessary condition for self-realization. The self-realized person feels a sense of oneness with the universe and of common wealth. She/he is focused on contributing

¹ <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/health117z-eng.htm>

² Taimini, I.K. The Science of Yoga: The Yoga-Sutras of Patanjali in Sanskrit.

her/his best to the local community not expecting any more than bare necessities. Her/his stress level is zero or very low which makes this person at home anywhere in the universe. Expressing in terms of stress, belonging, fragmentation and integration, a self-realized person is totally stress free, he feels a sense of belonging anywhere and is integrated in all communities, fragmented in none.

If we can imagine a model community in which only the self-realized reside or only those reside who have a very low level of stress, according to ancient wisdom everyone will have a strong sense of belonging to the community. The community will be fully integrated with no alienation at all. Thus lack of stress, strong sense of belonging and integration may be considered synonymous to each other. On the other hand, high level of stress, lack of a sense of belonging, and fragmentation may be thought as synonymous to each other also.

MODERN SCIENCE MEETS ANCIENT WISDOM

According to ancient spiritual wisdom stress generally robs us of physical health; mental health; capacity to think, learn and discern between the trivial and the vital; harmony and coherence in interpersonal relations and social behavior. Compare that with the conclusions of a 2012 report³ of the American Academy of Pediatrics according to which chronic stress is associated with “hypertrophy and over activity in the amygdala and orbitofrontal cortex, whereas comparable levels of adversity can lead to loss of neurons and neural connections in the hippocampus and medial PFC” (pre-frontal cortex) which is responsible for cognitive behavior, personality expression, decision making, social behavior, concentration, orientation, abstracting ability, judgment, and problem solving ability.

THEORETICAL RELATIONSHIP BETWEEN STRESS AND BELONGING

This article analyzes the data published in the quoted tables on percentages with significant stress (x) and those with strong sense of belonging (y). It compares the results of this analysis with the ideas of the traditional spiritual wisdom associating strong sense of belonging with low levels of stress and its lack to high levels of stress. It is easy to see that these ideas of traditional wisdom can be expressed by an algebraic equation: $x + y = 100$ or $y = 100 - x$.

It is easy to see that with this equation expressing traditional wisdom, percentage of people with strong sense of belonging to the community (y) would be high if the percentage of those with high stress (x) is small. On the contrary, the percentage of those with strong sense of belonging to the community (y) would be small if the percentage of people with high stress (x) is elevated.

³The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics* 2012. Online version of this article is available at <http://pediatrics.aappublications.org/content/129/1/e232.full.html>

PURPOSE OF THE STUDY

Ancient spiritual wisdom presents various concepts and processes for the control and minimization of stress. Concepts work primarily through knowing (cognition). Processes are primarily neurophysiological in nature working mainly through calming the emotionally driven activity of the amygdale and the nervous system thereby transforming the state of being of the body-mind complex from that of high level of stress to the one with a lower level. Ancient wisdom thus addresses both knowing and being (cognition and behavior) of a person to help him/her manage the individual feelings of both stress and belonging.

The processes being neurophysiological in nature also have strong implications in physical health; mental health; attention, focus and learning capacity; thinking ability and insight; and family, corporate, social and any collective behavior.

The purpose of this study is to understand how the processes and concepts used in traditional spiritual wisdom to manage stress and belonging are also relevant today to change the state of being of individuals compatible with integration of communities in the metropolitan areas of Canada. It can perhaps be imagined that the Canadian observations are equally relevant on the global scale.

ANCIENT WISDOM ON THE ROOT CAUSES OF STRESS

According to ancient spiritual wisdom, stress is the result of constant awareness of our likes, dislikes, fears, finitude and limitations. Our likes becomes our wants, desires, attachments, appetites, habits, and addictions. Our dislikes become our distastes, disgusts, revulsions, aversions and hatreds. We are constantly in fear of violations to our likes, dislikes and/or their offspring. We do not want to fail to achieve what we like, nor do we want to fail to avoid what we dislike. Our anxiety about failure constantly eats at our very state of being. Our feeling of helpless arising from our inbuilt conditioning of early life compounds the state of stress.

They keep us self-centered. Our self-centeredness lies at the core of our stress.

A human baby begins its life in total helplessness and cries for help when its needs anything (the needs in early life very limited; only feed when it is hungry and dry diaper when it is wet). It perceives its helpless body with its senses and is very aware of it when it begins its life journey. The beginnings in finitude and limitations in fact become the very conditioning of our adult minds. This inferiority complex of finitude keeps us from devising strategies to get out of our stressful states of being. We feel as if we are being swept away by an unavoidable and incessant flow of likes, dislikes, fears and finitude – a world of one stress after the other.

In fact, we are unaware of the core reality of our existence. Our body-mind complex may be limited and finite, we in fact are more than our body-mind complex; our core reality which is spiritual in nature is subtle and infinite. Underlying all existence, it makes all that exist tick. It is the reality of multiple possibilities and unlimited potential. That is the reality at our core. When we realize that reality, we can actualize its potential to liberate ourselves from the trap of likes, dislikes, fears and finitude.

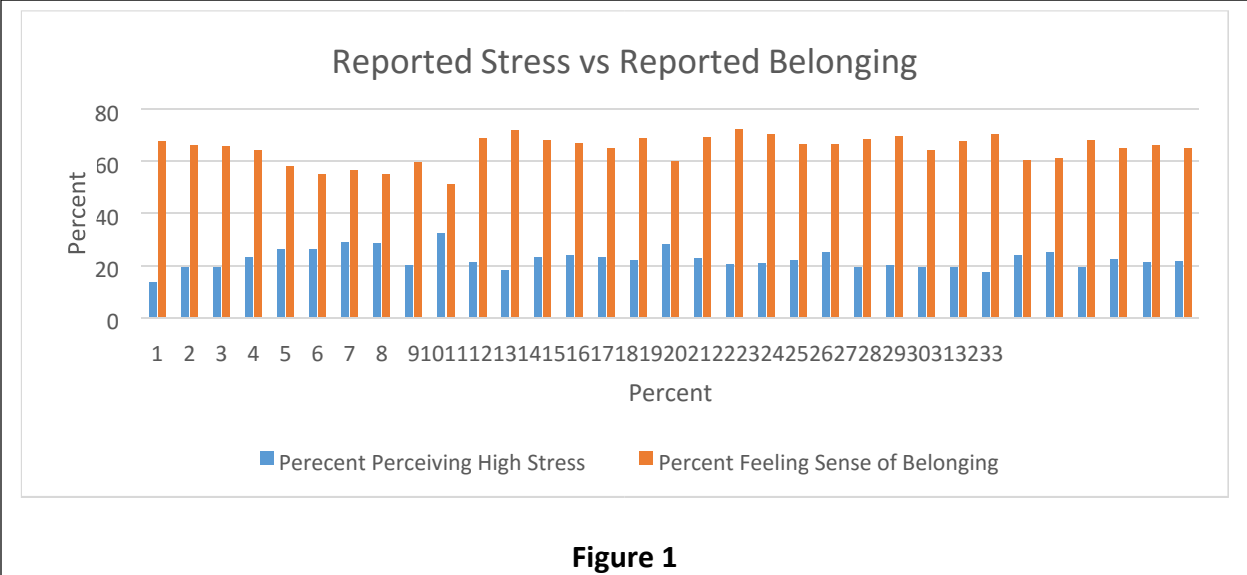
Likes, dislikes, fears and finitude comprise our instinctive emotions (inner motions) which are perpetual. Stress thus is natural fact of instinctive life, but we do not need to suffer its dire consequences. We can learn to attenuate and manage it. Since basal emotions are perpetual, new stresses arise every day. Management of stress then must be pursued regularly on a daily basis. We can even approach the state of zero stress and be completely free of it reaching the ideal of self-realization. Some strategies are outlined below:

1. Stress makes us breathe shallow and fast. When we are stressed, we chest breathe inhaling and exhaling a small amount of air with every breath and our rate of breathing is fast. We can learn to breathe abdominally. Abdominal breathing is slow and deep inhaling and exhaling a lot more air with each breath. Slow and deep breathing is neurologically and physiologically shown to calm the nerves and reduce the perception of stress.
2. The awareness of our core reality of multiple possibilities and infinite potential challenges us to grow, develop and build capacity to change the state of our being to a desired one. Cultivate that awareness. In fact, we can do and achieve anything we want. Develop and grow because we can; our core reality is that of infinite potential.
3. Also be aware that we share our core reality with every other being, animate or inanimate, that exists in the universe including the universe as a whole. In fact, what we ordinarily regard as the other in fact is our own existence. We then start feeling oneness with the other; there is no other as all that exist are in reality only one at their core. This is self-realization. Be self-realized, self-actualized. Then we become free of stress. Use it to build capacity to achieve what we want. Then our wants will be for common good rather than for narrow selfishness of instinctive emotions which produces nothing but stress.

DATA BY STATISTICS CANADA

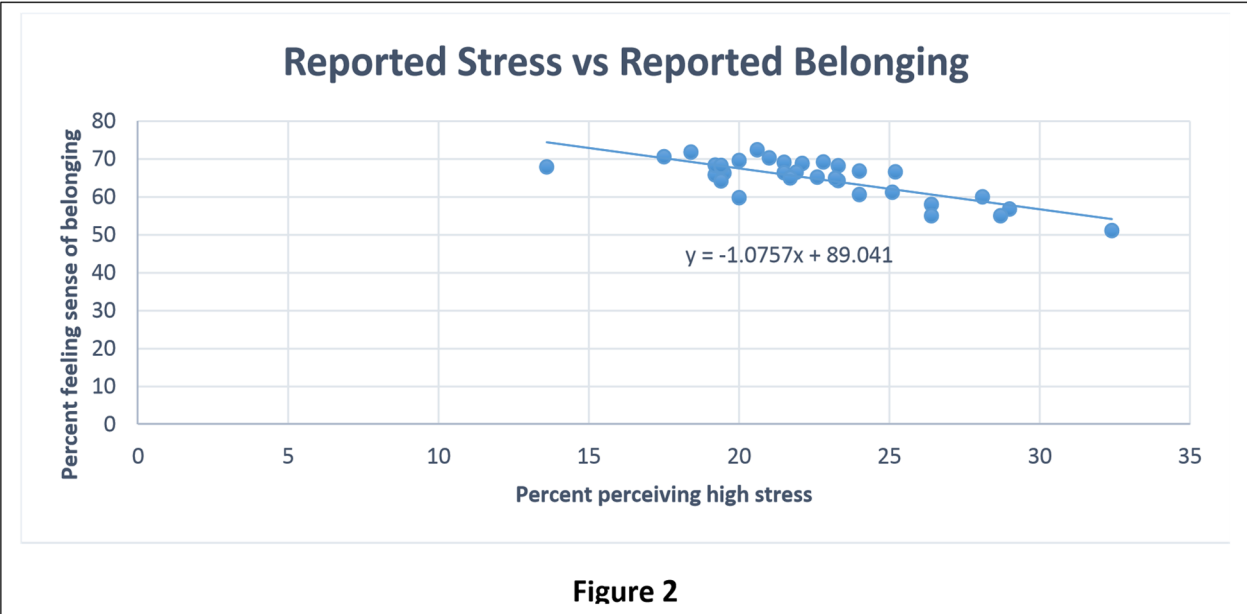
Table in Appendix A presents census data reported by Statistics Canada for the metropolitan areas listed in column 1 of the table. Column 2 lists percentages of people with significant stress while column 3 lists those with strong sense of belonging to their communities. Appendix B presents the notes of Statistics Canada in explanation of the data. Appendix B also notes that there exists a difference in age groups for census data on feelings of stress and of belonging.

Figure 1 presents the data in Appendix A in a chart form. Along the horizontal axes are shown numbers corresponding to the 33 metropolitan cities with values in column 2 in percentages represented by bars on the left and the values in column 3 in percentages again by bars on the right. It is easily noticeable that when



bars on the left are higher, bars on the right are generally lower and when bars on the left are lower, bars on the right are generally higher. It shows clearly that when stresses are higher, sense of belonging is lower and vice versa. This observation is as predicted by ancient spiritual wisdom on stress and its effect on integration and belonging.

Figure 2 presents the same data graphically showing a trend line visually and in the form of an algebraic



equation. There is a strong correlation of the data with the liner model represented by the equation $1.0757x + y = 89.041$ for data in the range of the tables by Statistics Canada. The magnitude of the coefficient of correlation is 0.7767 which is considered to be fairly strong.

AN IDEALIZED METROPOLITAN COMMUNITY

Society attaches a stigma to stress. As a result, real people under report personal stress. People also are unaware of personal stress especially when stress is a constant in their lives and they have not experienced any better state of being. For this particular part of the study, we will imagine an idealized population where people are aware of their personal stress levels and they do not under report its incidence because of the stigma attached to it.

It seems that there is a tendency to under report the sense of belonging as well perhaps because of the human tendency not to give full marks on subjective queries. The reason perhaps is subconscious doubts. In this idealized community, there will be no such tendency. If people have no alienating issues in their conscious mind, they do not hesitate acknowledge a strong sense of belonging.

We will also assume that in this idealized community, everyone answers the census questions about their level of stress and sense of belonging and no one abstains from answering them.

In such a community, according to ancient spiritual wisdom, the percentage of those with significant stress (x) and the percentage of those with strong sense of belonging (y) will add up to 100.

If we assume for the sake of making an argument that the Canadian metropolitan communities are such idealized communities, the data in column 3 of the Appendix A will increase as shown in the table in Appendix C.

Figure 3 presents the data in Appendix C in a chart form. Along the horizontal axes are shown numbers

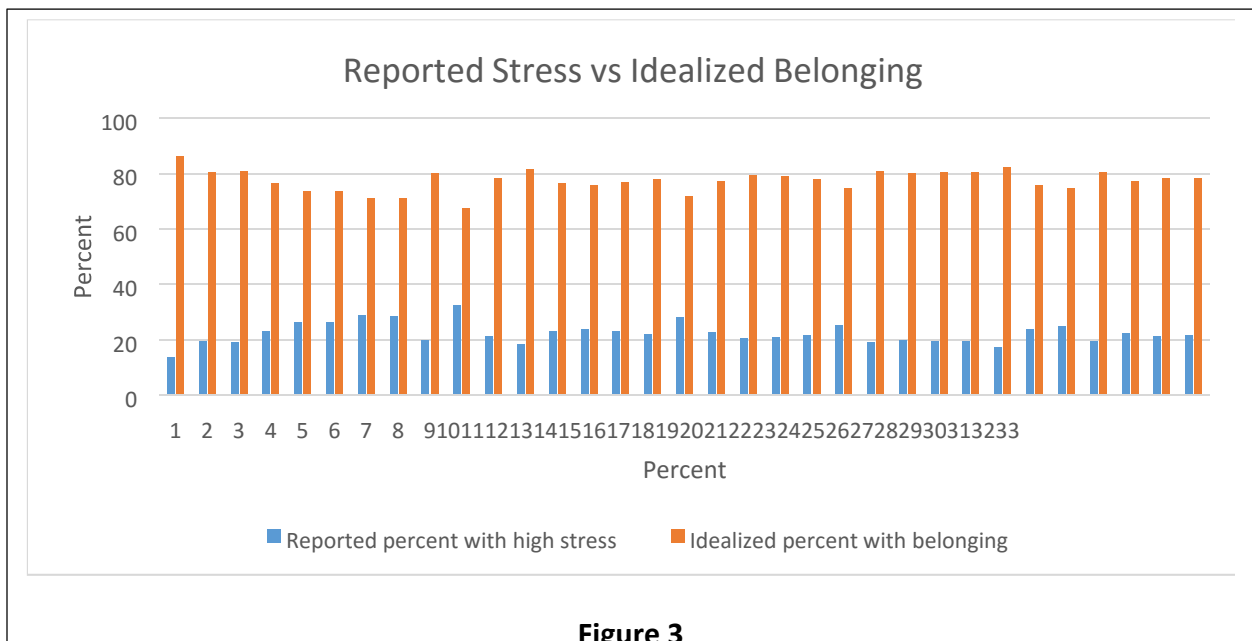
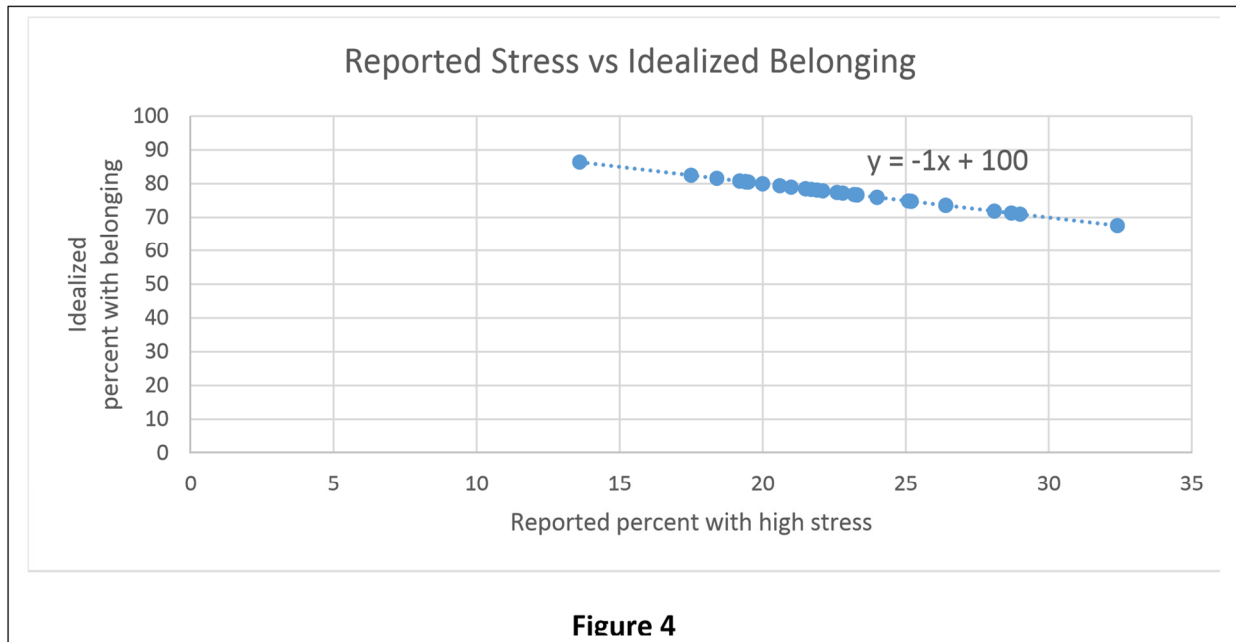


Figure 3

indicating metropolitan areas in Table 2 and along the vertical axes are bars representing reported percentages perceiving high stress on the left and corresponding computed percentages of those with strong sense of belonging assuming idealized communities.

Figure 4 presents the same data graphically showing a trend line visually and in the form of an algebraic equation. There is a perfect fit between the algebraic equation and the points on the graph because the in this figure represents idealized community with no under reporting either of the presence of stress or of the sense of belonging. Please note that the magnitude of the coefficient of correlation in this case is 1.0.



COMPARISON OF THE REPORTED AND THE IDEALIZED

Figure 5 presents a bar chart showing numbers indicating the metropolitan areas along the horizontal axis as before and bars representing corresponding values of reported percentages with high stress on the left, reported percentages with strong sense of belonging in the middle and computed values on idealized basis of those with strong sense of belonging on the right. This figure shows that the reported values of those with strong sense of belonging are invariably below those computed on the idealized conditions.

Figure 6 presents a comparison of the reported and idealized data in the form of graphs showing algebraic

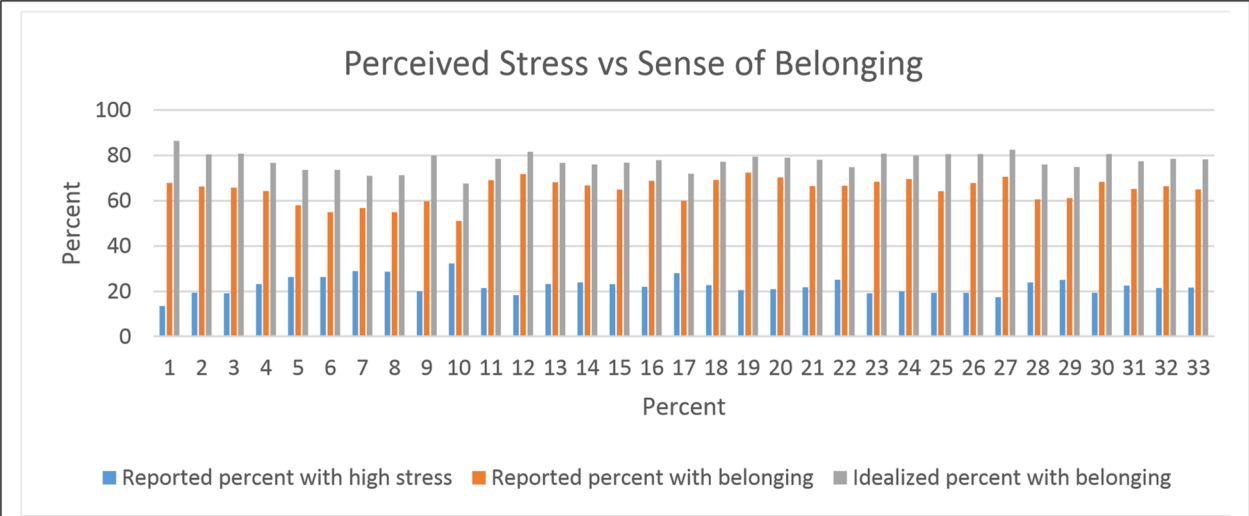


Figure 5

equations for the two cases respectively. Both the trend lines are practically parallel to each other with the

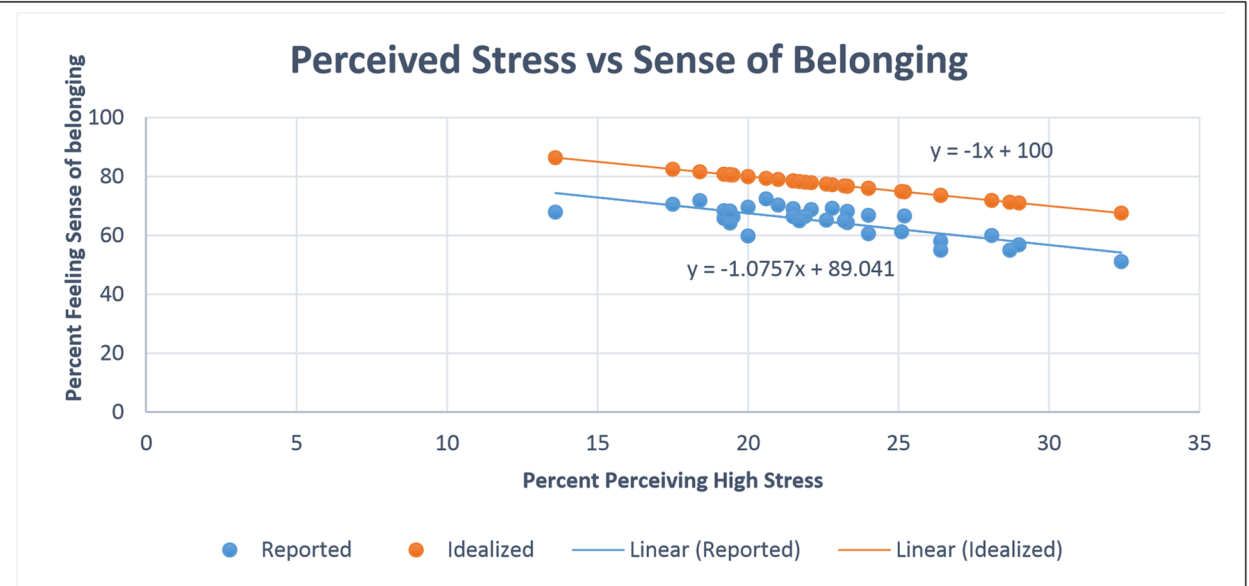


Figure 6

reported graph plotting below the idealized one due to possible under reporting of numbers or abstention from answering the census questions.

CANADA WIDE STRESS AND BELONGING

Statistics Canada publishes Canada wide numbers⁴ based upon all the metropolitan areas. Table 1 below shows a comparison of the reported percentages of those in all the metropolitan areas feeling a strong sense

⁴ <http://www5.statcan.gc.ca/cansim/a05?lang=eng&id=1050592#F2>

of belonging to their local communities with those computed using the algebraic model for the reported data. The correlation between the numbers is remarkable.

Table 1

	2009-20	2011-2012
Reported Percentage with high stress	24.1	24.0
Reported Percentage with Belonging	63.5	63.2
Percentage with Belonging calculated with formula based upon the study of metropolitan areas: $y = 89.041 - 1.0757x$	63.1166	63.2242

CONCLUSIONS

The study affirms the validity of the traditional spiritual thinking on stress and spirituality. People with high stress do not have a sense of belonging to their community while with low stress do. Self-realized persons with no stress whatsoever belong everywhere.

As the percentage of people with high stress increases, the percentage of people with sense of belonging decreases and vice versa.

Model based upon the analysis of statistical data for Canadian metropolitan areas ($y = 89.041 - 1.0757x$) has a strong correlation with the reported data. Any differences from the idealized community calculations based upon ancient spiritual wisdom ($y = 100 - x$) are possibly attributable to under reporting, abstentions from census questions and the difference in age groups for census data on feelings of stress and of belonging.

Stress and sense of belonging are significant markers of community health and wellness. For that reason, it is important for communities to take steps to foster high sense of belonging together with low stress. The question arises whether we should focus on steps to foster high sense of belonging or on steps to minimize stress. The study based upon statistical data no doubt shows a strong correlation of stress with sense of belonging, but it does not show any causal relationship. In other words, the study does not show whether the approach of emphasizing stress minimization or of maximization of belonging should be promoted. It perhaps is prudent to use a judicial mix of both keeping in mind the potential effectiveness of the approaches.

Modern neurophysiological sciences support the stress management strategies of ancient wisdom. This study implicitly makes a strong case for the use of time proven science based stress managing strategies for the purpose of community integration, health, wellness and a sense of belonging.

Appendix A

Health indicator profile by census metropolitan area, two-year period estimates 2011/2012		
Census Metropolitan Areas	Perceived life stress, quite a lot (15 years and over)	Sense of belonging, somewhat strong or very strong
Column 1	Percentage of inhabitants in the community X Column 2	Percentage of inhabitants in the community Y Column 3
1. St. John, NF	13.6	67.9
2. Halifax, NS	19.5	66.3
3. Moncton, NB	19.2	65.8
4. Saguenay, PQ	23.3	64.3
5. Sherbrooke, PQ	26.4	58.0
6. Quebec City, PQ	26.4	55.0
7. Trois-Rivières, PQ	29.0	56.8
8. Montreal, PQ	28.7	55.0
9. Ottawa-Gatineau, ON	20.0	59.8
10. Ottawa-Gatineau, PQ	32.4	51.1
11. Kingston, ON	21.5	69.1
12. Peterborough, ON	18.4	71.8
13. Oshawa, ON	23.3	68.2
14. Toronto, ON	24.0	66.8
15. Hamilton, ON	23.2	64.9
16. St. Cath-Niagara, ON	22.1	68.8
17. K-W+Camb, ON	28.1	60.0
18. Brantford, ON	22.8	69.2
19. Guelph, ON	20.6	72.4
20. London, ON	21.0	70.3
21. Windsor, ON	21.9	66.5
22. Barrie, ON	25.2	66.6
23. Sudbury, ON	19.2	68.4
24. Thunder Bay, ON	20.0	69.6
25. Winnipeg, MB	19.4	64.2
26. Regina, SK	19.4	67.8
27. Saskatoon, SK	17.5	70.6
28. Calgary, AB	24.0	60.6
29. Edmonton, AB	25.1	61.2
30. Kelona, BC	19.4	68.3
31. Abbotsford-Mission, BC	22.6	65.2

32. Vancouver, BC	21.5	66.4
33. Victoria, BC	21.7	65.0

Appendix B

Explanation of Data in Appendix A

Column 1. A census metropolitan area (CMA) is an area consisting of one or more adjacent municipalities situated around a major urban core. To form a census metropolitan area, the urban core must have a population of at least 100,000. The CMAs are those defined for the 2006 Census. To form a census agglomeration, the urban core must have a population of at least 10,000.

Column 2. Population aged 15 and over who reported perceiving that most days in their life were quite a bit or extremely stressful. Perceived life stress refers to the amount of stress in the person's life, on most days, as perceived by the person or, in the case of proxy response, by the person responding.

Column 3. Population aged 12 and over who reported their sense of belonging to their local community as being very strong or somewhat strong. Research shows a high correlation of sense of community-belonging with physical and mental health.

Note that the data in column 2 is for age group 15 and over while that in Column 3 is for ages 12 and over.

Appendix C

Health indicator profile by census metropolitan area assumed as idealized communities, two-year period estimates 2011/2012		
Census Metropolitan Areas	Perceived life stress, quite a lot (15 years and over) Reported by Statistics Canada	Sense of belonging, somewhat strong or very strong assuming idealized communities
Column 1	Percentage of inhabitants in the community X Column 2	Percentage of inhabitants in the community Y = 100 - X Column 3
1. St. John, NF	13.6	86.4
2. Halifax, NS	19.5	80.5
3. Moncton, NB	19.2	80.8
4. Saguenay, PQ	23.3	76.7
5. Sherbrooke, PQ	26.4	73.6
6. Quebec City, PQ	26.4	73.6
7. Trois-Rivières, PQ	29.0	71.0
8. Montreal, PQ	28.7	71.3
9. Ottawa-Gatineau, ON	20.0	80.0
10. Ottawa-Gatineau, PQ	32.4	67.6
11. Kingston, ON	21.5	78.5
12. Peterborough, ON	18.4	81.6
13. Oshawa, ON	23.3	76.7
14. Toronto, ON	24.0	76.0
15. Hamilton, ON	23.2	76.8
16. St. Cath-Niagara, ON	22.1	77.9
17. K-W+Camb, ON	28.1	71.9
18. Brantford, ON	22.8	77.2
19. Guelph, ON	20.6	79.4
20. London, ON	21.0	79.0
21. Windsor, ON	21.9	78.1
22. Barrie, ON	25.2	74.8
23. Sudbury, ON	19.2	80.8
24. Thunder Bay, ON	20.0	80.0
25. Winnipeg, MB	19.4	80.6
26. Regina, SK	19.4	80.6
27. Saskatoon, SK	17.5	82.5
28. Calgary, AB	24.0	76.0
29. Edmonton, AB	25.1	74.9
30. Kelowna, BC	19.4	80.6
31. Abbotsford-Mission, BC	22.6	77.4
32. Vancouver, BC	21.5	78.5
33. Victoria, BC	21.7	78.3