CHAPTER - II

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Blood Group:

In 1900, Karl Land Steiner, an Austrian scientist noticed, as many traditional practitioners already had, that everyone’s blood is not the same. However Land Steiner was not using traditional observation methods. He used a microscope and became able to distinguish for the first in history, two distinctive chemical molecules present in the blood. He labeled one molecule A and the other B. He further categorized the blood by stating that if a red blood cell had A molecules in it was type A, if it had only B molecule in it was type B, if it had both it was an AB and if it had neither it was type O. It was also observed that all blood types were not compatible with each other and a mixing of A and B, created a deadly clotting. He was awarded the noble prize for this achievement (Franklin institute).

After some time a surprising fact about blood group came into the light. It was found that blood types are originated historically with different groups of people. Current theories suggest that the basic blood types evolved chronologically in the order O, A, B, AB. Group ‘O’ is the oldest historically, originating with our Cro-Magnon forebears around 40,000 BC. Group ‘A’ developed when societies began to form. Group B developed after A, in the area of
Himalayan highlands between 10,000 and 15,000B.C. AB is the most resent of the blood group and the most paradoxical. It developed between 900 and 1000 years ago.

Blood group is having much clinical as well as genetic importance in it self, but as being discovered lately, the efforts to correlate it with different disciplines of medical science are not very much in numbers. The first effort to find the association between blood groups and diseases was done by Buchanan and Higley (1921), but they couldn’t get any kind of relationship.

Arid and Bentall did the first well-established claim for relationship between blood group and diseases in 1953, that was in between group A & Carcinoma for stomach. Similarly, an even closer association between group ‘O’ and duodenal ulcer was found by Roberts, 1959: and the pernicious Anemia and blood group A in comparison of blood group ‘O’ was presented by Collective Series, 1956.

In this sequence, Walter et al. (1965) got an apparent association between ABO blood group types and association diastolic blood pressure, in a study of 5777 members of 1068 Brazilian families of mixed ethnic origin. the mean diastolic blood pressure of group ‘O’ individual was found to be 1.7 mm hg higher than their normal siblings with other ABO types. The cause and biological significance of the association was not described, however.

Judy Z. Miller, Clarence E. et al. (1979) also studied the association of blood groups (MNS System) with essential and secondary Hypertension. The
findings of disease-blood group association support that there may be significant physiological differences between individuals of different blood types.

After 1960 or so psychologists began to pay their attention towards blood groups and tried to relate them to several factors such as with psychotic disorders (Maurer - Groeli, 1974; Montejo, et al., 1985; Boyer 1986), Neuroses (Rinieris, et al., 1983), and Suicidal and homicidal behavior (Lester 1987; Lester and Gatto 1987).

In a study done by R.B. Cattell (1964) it was found that the persons of AB blood group might be considered as most anxious than those of other blood groups.

Eyesenck (1977) also found the persons of blood group AB as higher on neuroticism.

V.V. Jogawar (1977) confirmed a clear relation between blood group and personality. It was shown in the study that persons of blood group B are found to be highly emotional in comparison to other blood groups of ABO blood group system.

Marutham, P., and Indira Jai Prakash (1990) studied the relationship between certain personality variables and blood types. Subjects belonging to different blood types of ABO blood group system were assessed with reference to extraversion, neuroticism and type A behavior pattern. They found that on neuroticism scale mean score of the three blood groups did not differ but when groups were divided on the basis of cut off points for neuroticism, significant relationship was found between B blood group and neurotism.
Saxena, and G.P. Prakash (1997) studied the relation of blood group to personality traits of male and female adults. The study, investigated the differences in the personality traits of male and female adults of four blood types i.e., A, B, O, and AB. The sixteen PF test was administered and four second order personality characteristics, i.e., extraversion anxiety, tough poise and independence were calculated through second order scoring procedure. Study revealed that B blood group females and AB blood group females are found to be much high in anxiety. Significant differences in the personality factors of males and females belonging to different blood groups were revealed by the study.

In a recent study Tiwari, M. & Prakash, G.P. (2002) found the subjects of blood group B as more prone to depression and anxiety.

Gupta, Sunita (2002) conducted a study to know the effect of blood group and season of birth on some personality dimensions as extraversion, neuroticism, impulsiveness, venturesomeness, empathy and locus of control. Significant differences were found among the subjects belonging to different blood groups and different seasons of birth for extraversion, impulsiveness, neuroticism and sociability.

**Anxiety:**

The importance of anxiety as a fundamental human emotion is widely recognized by behavioral and medical scientists and many regard it as a basic condition of human existence. That is why researches on anxiety had been taken
place from the very past time. Since 1950, 5000 articles and books on anxiety had been published (Speilberger, 1972). In India the first group of studies were reported in early 1960s due to the pioneering work of Prof. D. Sinha. Till the end of 1976, approximately 176 studies had been reported in leading research journals (Sagar Sharma, 1978).

**Anxiety and Locus of Control:**

The constructs of anxiety and locus of control may both be viewed in relation to personality trait and situational variables. A large body of literature has resulted from examinations of associations between the two. But studies reporting the in this area are conflicting. Some investigators reported significant relationship between more external locus of control orientations and higher levels of trait anxiety (e.g., Watson, 1967; Ray and Katahn, 1968; Nowicki, 1972; Jolley & Spielberger, 1973; Naditch, Gargan, & Michael, 1975) and, between the perception of greater situational control over aversive stimulation and lower state anxiety (e.g., Haggard, 1943; Pervin, 1963; Mandler & Watson, 1966).

Some researchers, however, have found a significant negative relationship between locus of control and anxiety (Butterfield, 1964; Mink, 1976). In addition, Feather observed locus of control to be independent of anxiety. He proposed that the anxiety scales and the LC scale are measuring conceptually separate variables which correlate with each other and that this correlation was not due to a hidden anxiety factor within the locus of control scale. (Feather, 1967)
Sinha & Krishna (1971) conducted a study in order to assess the strength of relationship between locus of control, and the three anxiety measures - test anxiety, manifest anxiety and free-floating anxiety. The findings reveal that locus of control bears significant and positive association with all three anxiety measures.

Lefcourt (1976) has argued that since internals have been shown to take a more active stance towards life, shouldering personal responsibility, exploring more effective cognitive strategies and being better able to delay gratification than externals, it follows that internals would be less prone to mental illness. Since externals believe that their actions have little effect in altering their environment, they should feel more helpless and be subject to higher levels of depression and anxiety than internals.

It was found in the study of Victor Molinari and P. Khanna (1981), that –

(I) Internals manifest less debilitating anxiety than either of the external group.

(II) Defensive externals do not show greater amount of anxiety than congruent externals.

(III) Internals do not show more facilitating anxiety than the external locus of control groups.

Rapee (1991) considered locus of control as an important factor for developing and maintaining anxiety. He proposed that anxious persons appear to have a biased perception of threat as well as a sense of uncontrollability. They
focus more attention on detecting potential threats, more readily interpret ambiguous stimuli as threatening, and automatically view threats as greater than non-anxious persons. In addition, they see themselves as lacking control of events, which further increases the perception of threat.

**Anxiety and Blood Pressure**:

Studies looking for the relationship between anxiety and blood pressure doesn’t verify to each other. In a chain, to find out the correlation between blood pressure and trait anxiety, the findings of three studies were not favorable at all. *(Balshan, 1962; Glass, Lake Contrada, Kheoe & Erlanger, 1983; Smith, H. and Jurawspi, 1984).*

In contrast of these finding, some other researchers found the relationship between blood pressure and anxiety, *(Dykmanm, Ackerman, Galbrecht, and Reese, 1963; Stamps, F. and Lewis, 1979; Manuck and Saab, 1986).* But, the results were not strong enough.

**Wheatley and Co-workers** (1975) studied the psychiatric profiles (i.e. depression, anxiety and anger hostility) of 174 hypertensive patients and an equal number of normotensive controls. These investigators found no statistical relationship between anxiety and elevated blood pressure.

**Mathew, J., Friedman and Patria, L. Bennet** (1977) found that blood pressure was not correlated with Hamilton depression scores but rather with
anxiety and agitation. They did suggest, however that anxiety may be a crucial variable in the pathogenesis of hypertension.

Glass et al. (1983) found a relationship between anxiety (as measured by the Mandler Sarason test anxiety questionnaire), systolic blood pressure, diastolic blood pressure and heart rate responses to a mental arithmetic task and a modified stroop task.

Again, Matthews et al. (1990), using a real life stressor, convincingly demonstrated the difference between high and low trait anxious individuals in their blood pressure.

A number of studies have investigated the relationship between blood pressure and anxiety, in subjects who become anxious in specific situation. The most frequently studied situation specific anxieties are test anxiety, social anxiety, performance anxiety and specific phobias.

Beidal, Turner and Dancu (1985) found that socially anxiety subject (as defined by the social avoidance and distress scale, the fear of negative evaluation scale and the STAI), showed greater increases in systolic blood pressure and heart rate during and opposite sex social interaction and greater systolic blood pressure responses during and important speech then did subjects who were not socially anxiety. No difference between groups was observed for diastolic blood pressure or during a same sex social interaction. This study gives partial support to the relationship between blood pressure and social anxiety.
Turner, Beidel and Larkin (1986) found that socially anxiety individuals recruited either from a clinic or though a questionnaire showed significantly higher systolic blood pressure levels than did normal individuals during an impromptu speech, but not during two role playing interactions. There were no significant difference in diastolic blood pressure and heart rate.

In a study of Katri, Rajkonen et al. (1999) it was found that the individual with high scores on the Spielberger Trait Anxiety Inventory had significantly higher averages of systolic blood pressure and diastolic blood pressure levels than individuals with low scores. This was found independent of gender and some other factors. He recommended also that anxiety might produce high blood pressure and hypertension in all males and females.

Markovitz suggested in this sequence, that the persistent elevations of BP and emotional responding of anxious individuals might lead to future hypertension (Markovitz et. al., 1991, 1993).

Anxiety, Locus of Control & Blood Pressure:

Studies connecting to anxiety, locus of control & blood pressure are a few in numbers. In an only known study, conducted by A. Wemmerholm et al. (1976), high blood pressure patients were compared with normal patients in locus of control and anxiety. The groups did not differ in locus of control but the high blood pressure subjects appeared to be more sensitized, distressed and anxious than the other groups.
Anxiety and Sex & Age:

It is assumed widely that the experience of anxiety is not at all untouched with the effect of age & sex. So many researchers in this area have tried to seek out the concrete and significant relation of anxiety with age & sex. But, the results are vague & contradictory still.

Dutt (1968) on sample of administrators, Nijhawan (1972) and Ghosh & Singhal (1973) on samples of school and college students found age and anxiety to be unrelated. However, Krishna (1971), Srivastava & Sinha, M.M. (1974) reported negative relationship between these two variables.

Durrett (1965), Devi (1969), Murlidharan & Sharma, A. (1971), Sharma, K. L. & Gandhi (1971) and Nijhawan (1972), Daftuar & Krishana (1972), De, & Singh (1972), Choski (1975), Arora (1976) and Chatterjee et al., (1976), reported females to be more anxious than males, in their study.


Only two studies - Singh A, (1972), Ansari & Krishna, (1974) found males to be more anxious than females.

Moreover, Najhawan (1972) reported that sex differences in general anxiety were more prevalent in the lower social class, less in the upper social
class, while no significant differences were found in the middle class. As regards test anxiety sex differences were prevalent in the upper class only.

A study, done to know the sex differences for anxiety level by G. Rajmohan & A. Kuppan (1980) revealed that there is no significant difference in the anxiety level of boys and girls in general. Moreover, girls with internal locus of control orientation scored high in the anxiety scale than old boys with the same personality dimension.

On the other hand, a study performed by Dodia, Geeta (2001) revealed an insignificant effect of gender on anxiety level of adolescents.

**Locus of Control**:

Research with the locus of control construct began formally in the early 1960s and was reviewed in papers by H.M. Lefcourt in Psychological Bulletin and by Julian Rotter in Psychological Monographs, published in 1966. Both articles became “citation classics” stimulating a groundswell of subsequent research. The early studies reviewed in these papers demonstrated the effects of control expectancies upon well-known learning phenomena such as extinction and upon social behaviors such as participation in civil rights protests.

Locus of control became the predominant construct in personality research during the 1970s and 1980s (Lefcourt, 1981). Individual measures of locus of control were found to be associated with alertness, information seeking, and a
sense of well-being. In each instance, a more internal locus of control assessed as a personality characteristic, was positively associated with active problem solving behavior, awareness, resistance to attempt at coercion, and positive affect. A more external locus of control was more often found to be associated with passivity, 'influence ability', conformity, dysphoria, and diminished ability to cope with stressful life events (Lefcourt 1981, 1983, 1984; Lefcourt & Davidson 1991).

Contemporary research shows that the sense of control over one's life reduces depression, anxiety, physiologically malaise, and alcoholism (e.g. Wheaton 1980; Pearlin et al. 1981; Elder and Liker 1982; Turner and Noh 1983; Seeman, seeman, and Budros 1988; Gecas 1989; Rosenfeld 1989; Mirowsky and Ross 1989, 1990), and thus indirectly reduces rates of physical illness and mortality (Bruce and Leaf 1989; Rodin 1986).

In a 1991 review of currently available assessment method Herbert M. Lefcourt described the psychometric characteristics of 18 different measures designed to assess control beliefs among different groups and for different goals and situations.

**Locus of Control and Sex & Age:**

The theory of personal control predicts that women have lower sense of control than men, but the evidence is equivocal (Mirowsky and Ross 1986, 1989; Ross and Sastry 1999). Sometimes this difference is found to be significant (Mirowsky and Ross 1983, 1984; Ross and Wright 1998; Thoits 1987) but
sometimes not (Ross and Bird 1994; Ross and Mirowsky 1989). Inconsistencies in research results suggest that women’s sense of control is lower under some conditions but not others.

Mirowski, Ross and Sastry proposed that as compared with men, women have lower levels of education, are less likely to have a personal history of paid employment, perform less fulfilling daily activities and a disproportionate amount of household work, receive lower incomes, endure more economic hardship (Ross and Mirowsky 1992; Ross and Sastry 1999) and partly as consequence of these work and economic disadvantages, suffer worse physical health (Ross and Bird 1994). All of these factors these factors theoretically reduce the sense of personal control over one’s life (Mirowsky and Ross (1989).

But, as published by U.S. Bureau of the Census 2000, in 1980 14 % of women of age 25 and over had a college degree, compared with 21% of men. By 1999, the figures were 23% of women and 27 % of men. Women now earn the majority of college degrees. About 60 % of women were in the paid labor force in 1999, in contrast to 37 percent in 1960. The wage gap between men and women also has narrowed; in 1999, women who were employed full-time year-round earned about 73 % of what men earned, up from 60 % is 1980.

Bianchi & Bianchi proposed that, now married women spend fewer hours for domestic work than in the past while married men spend more hours especially in childcare. One of the most important sources of opportunity is now equal among young men and women. Although the division of paid and unpaid work
and economic well-being still favors men, the gender gap has narrowed (Bianchi 1992; Bianchi, 2000).

Bianchi and Spain (1992) exposed that the increasing divergence between men and women as they age may be greater for older people than for younger, because the life course pattern of employment also differs by generations. The traditional sex-typed division of paid and unpaid work is more common in older generations. In younger generations men’s and women’s employment patterns are more similar.

Alternatively some observers argue that men and women are more equal in older age (Gove 1984). They suggested however, that the young and the middle aged men enjoy the benefits of employment at good jobs with high earnings while women often interrupt their employment for family care or combine employment with heavy responsibility at home thus producing and overload. In older age men retire, losing their access to fulfilling work, high earnings and status meanwhile the children leave home freeing women from the conflicts between employment and family responsibilities. Men’s advantages over women thus are not so great.

According to Verbrugge (1986), as people age, their subjective feelings of health and their physical functioning decline. Although younger people at any age tend to be healthier than older ones, effects of aging faced by all generations eclipse individual differences.

In a review Lachman (1986) concluded that about one third of studies found low level of control among the elderly, one-third found high levels, and one
third found no association between age and the sense of control. Rodin (1986) also concluded that there was little evidence of a decrease in perceived control with age.

Mirowsky, Schieman and Turner revealed that older adults have a lower sense of control than do younger adults, and perceived control decreases with age at an accelerating rate (Mirowsky 1995; Schieman and Turner 1998).

Surveys show a comparatively high average sense of control in persons of age-range 18 to 50, which decreases in successively older age groups at an increasing rate the cubic curve is flat in early adulthood but is grows steeper at an increasingly rapid rate with advancing age (Mirowsky 1995).

Some observers recommended that the association between older age and a lower sense of personal control might be probably due to aging. As people age health and physical functioning deteriorate. Difficulty in seeing, going up and down stairs, carrying things, walking and the like complicates the tasks of everyday life. People can manage impairment more or less resourcefully but such impairment taxes personal resources imposing constraints that lower the average sense of personal control (Baltes, M.M., Hans, W.W., & Ulrich, S.F. (1990); Mirowsky 1995; Schieman and Turner 1998).

According to Mirowsky and others, older people are disadvantaged in terms of educational attainment also. Lower levels of education explain part of the
association between age and the sense of control (Mirowsky 1995; Wolinsky and Stump 1999).

Catherine E. Ross & John Mirowsky (2001) used the survey of Aging, Status, and the Sense of Control (ASOC) in which a representative sample of U.S. respondents were interviewed in 1995 and again in 1998 and revealed that the gender gap in personal control is greater among older person than younger, and that over time women’s sense of control declines more than men’s. Education, personal employment history, household income and physical functioning account for some of the age based effect of gender on perceived control. Work fulfillment, fairness of domestic labor, economic hardship, and self-reported health do not, however.

**Blood Pressure:**

Blood pressure distribution in a population has been subjected of considerable discussion. Varying results have been obtained under different conditions (Lovell 1963, Dawber, 1967). Various personal, social and environmental factors like age, sex, social status, diet, and ethnicity have been cited as possible correlates. According to Miall (1967) age, sex and race are the three main variables influencing blood pressure largely.

Some attempts have been made in India also to explain the influence of some of these factors, particularly of age and sex (Wilson, 1958; Padmavati and Gupta, 1959; Singh et al. 1968, Celine and Mathur, 1970; Indrayan,
Shrivastava and Bagchi, 1972a, 1972b; Malhotra & Ganguli, 1976;
Shrivastava, Varma, Kumar and Shrivastava, 1977; Mukhopadhyaya and
Chakraborty, 1978; Gupta, Siwach and Gupta, 1979; Rao Sambasiva, R.
1980; Rao Sambasiva, R. 1983; Mukherjee, Byard, Bhattacharya and Rao,

**Blood Pressure and Sex & Age:**

According to Platt (1961) there are two types of population, one in which
BP rises significantly in middle age and the other in which BP rises only little, if at
all, with increasing age. Based on his hypothesis BP recorded in any sample of
total population will show a rise with advancing age since it will be a mean of the
two types of population.

WHO carried out a study (WHO, 1967; Murphy, 1967) on 820 individuals
of Rajasthan aging 15 years and above. In the results, the mean systolic and
diastolic blood pressure increased with age, and a positive and significant
correlation of blood pressure and age was observed in both males and females.

In a study drawn by Abhaya Indryan et al. (1972) distribution of systolic
and diastolic blood pressure of 2,023 individuals of age 15-74 years was found
affected by age-sex structure as well as by built and social status of the individuals
studied. Of these, age and sex were amenable to standardization.

Malhotra (1971) did not find any correlation between blood pressure
values and age in North and South Indian Railways workers.
Slight lower blood pressure in females than in males were reported by a number of researchers (Master, Lasser, Jaffe and New York, 1958; Indrayan, Shrivastava and Bagchi, 1972b; Malhotra & Ganguli, 1976; Shrivastava, Varma, Kumar and Shrivastava, 1977; Mukhopadhyaya and Chakraborty, 1978; Gupta, Siwach and Gupta, 1979), and they attributed this difference to female’s small body size and stature as well as to the protective nature of hormones in the females.

Various studies have been conducted on tribal, primitive and uncultured populations from different parts of the world, to know the effect of age and some other factors on blood pressure (Master, Lasser, Jaffe and New York, 1958; Kaminer and Lutz, 1960; Baker, 1969; Marticorena, Ruiz, Severino, Galvez and Penalosa, 1969; Oliver, Cohen and Neel, 1975; Prior, I.A.M. 1978; Makela, Bartom and Scheull, 1978; Marmot, 1984). According to these studies, there was no rise of blood pressure with increasing age. It was considered that this was found either due to unacculturation, non-exposure to urbanization, industrialization or isolation from the modern world of rush and affluence or low intake of salt etc.

Gupta, S.P. et al. (1977) found in their observation that –

i. The highest prevalence of hypertension was in the upper socio-economic group and lowest in the lower socio-economic group.

ii. The prevalence increased with age. And,
iii. A higher prevalence rate was found in women compared to men after the 5th decade.

It was recommended in this study that, with further improvement in the Indian economy, the percentage of people in the upper socio-economic group would inevitably rise, which may lead to higher prevalence of hypertension in Indian population. Moreover females tend to put on weight towards menopause but other factors associated with aging or menopause might also be responsible for higher prevalence in females.

It was revealed in some studied that in Western societies elderly people are more likely to have hypertension (Heyden, Durham and Walkel et al., 1971; Wagner, Slome and Carroll et al., 1980; Cornoris, Lacroin and Hawlik, 1989).

Rao Sambasiva R. (1983) conducted a survey of arterial blood pressures measured in 193 adult males and females of Reilli community, selected at random from Visakhapatnam City, Andhra Pradesh Like other studies carried out in and around Visakhapatnam City (Rao Sambasiva R., 1979, 1980; Rao Sambasiva R. and Verraju, 1981), the study showed a rise of blood pressure with advancing age. Up to middle age, males show higher levels than females of the same age, while older females show higher mean pressures than males. The incidence of hypertension is also markedly higher among females than among males. This might be due to higher intake of pork and beef by these people who are also
engaged in relatively light physical activities. Most of the Rellis are scavengers and vegetable venders, and some are in sedentary occupation.

Three thousand three hundred and forty industrial workers and 1,008 executives and professionals of Ludhiana were studied by Sharma, B.K. et al. (1985) to find out the prevalence of hypertension in different socio-economic strata to observe the effects of age, body weight, smoking habits, alcohol intake, income and the type of work on blood pressure. Eighty-eight (2.63%) of the former and 142 (14.08%) of the later were detected to be hypertensive. Prevalence of hypertension showed an upward trend with increasing age, weight and alcohol consumption. Average systolic and diastolic blood pressure showed a positive correlation with increasing age, body weight and economic status. Majority of hypertensives were not aware of their hypertension and fewer of these were controlled.

The study also put forward that both mean systolic and diastolic blood pressures and prevalence of hypertension increased steadily with advancing age irrespective of socio-economic status.

N.K. Goel and P. Kaur (1996) compared the prevalence of hypertension of different age groups in rural community of India with white Americans and Sub-Urban Dutch people and found that hypertension was about the same in the younger age groups. From this study they also concluded that the prevalence of hypertension in this rural India community increased with age, body weight, socio-economic status and salt-consumption. They also suggested that with further
improvement in the Indian economy, the percentage of people in the upper socio-economic group would inevitably rise, which may lead to higher prevalence of hypertension in Indian population.

Nirmala & Reddy (1996) proposed that means of both blood pressures increase with age, but the increase of diastolic pressure is not as marked as systolic pressure. In this study diastolic pressure was found decreasing after 60 years in both sexes. Significant sex difference was seen in younger ages for systolic pressure. But for diastolic pressure significant sex differences was evident only in the second decade.

**CRITICAL EVALUATION OF REVIEW OF RELATED LITERATURE**

**Blood Group:**

- After 1970 several factors are found related to blood groups such as psychotic disorders (Maurer- Groeli, 1974. Montejo. et al., 1985; Boyer 1986), Neuroses (Rinieris, et al. 1983), and suicidal and homicidal behavior (Lester 1987; Lester and Gatto 1987)
- Walter et al. (1965) got an apparent association between ABO blood group types and association diastolic blood pressure.
• Judy Z. Miller, Clarence E. et al. (1979) studied the association of blood groups (MNS system) with essential and secondary hypertension and proposed that there may be significant physiological differences between individuals of different blood types.

• In a study done by Eysenck (1977) it was found that the persons of AB blood group may be considered as higher on neuroticism.

• R.B. Cattell (1977) also found the persons of blood group AB as most anxious than those of other blood groups.

• V.V. Jogawar (1977) confirmed a clear relation between blood group and personality. It was shown in the study that persons of blood group B are found to be highly emotional in comparison to other blood groups of ABO blood group system.

• Saxena and G.P. Prakash (1997) revealed that B blood group females and AB blood group females are found to be much high in anxiety.

• Tiwari, M. & Prakash G.P. (2002) found the subjects of blood group B as more prone to depression and anxiety.

• Sunita Gupta (2002) found significant differences among the subjects belonging to different blood groups and different seasons of birth for neuroticism.

**Anxiety:**

• Studies reporting the relationship between anxiety and locus of control are conflicting. Some investigators reported significant relationship between more
external locus of control orientations and higher levels of trait anxiety (e.g., Watson, 1967; Ray and Katahn, 1968; Nowicki, 1972; Jolley & Spielberger, 1973; Naditch, Garigan, & Michael, 1975). Some found negative correlation between locus of control and anxiety (Butterfield, 1964; Mink, 1976). While some other (Feather, 1967) however found no correlation between locus of control and anxiety.

• Sinha & Krishna (1971) revealed that locus of control bears significant and positive association with three anxiety measures - test anxiety, manifest anxiety and free-floating anxiety.

• Lefcourt (1976) and Rapee (1991) considered locus of control as an important factor for developing and maintaining anxiety.

• Studies looking for the relationship between anxiety and blood pressure doesn’t verify to each other. Some researcher did not find any correlation between blood pressure and anxiety (Balshon, 1962; Glass, Lake Contra, Kheoe & Erlanger, 1983; Smith, Houston and Juravspi, 1984). In contrast of these finding, some other researchers found the relationship between blood pressure and anxiety, (Dykmanm, Ackerman, Galbrecht, and Reese, 1963), (Stamps, Fehr and Lewis, 1979; Manuck and Saab, 1986; Matthews et al. 1986).

• Wemmerholm et al. (1976) compared high blood pressure patients with normal patients in locus of control and anxiety. The groups did not differ in locus of
control but the high blood pressure subjects appeared to be more sensitized, distressed and anxious than the other groups.


- Katri Rajkonen et al. (1999) found that the individual with high Anxiety had significantly higher averages of systolic blood pressure and diastolic blood pressure levels than individuals with low scores. Independent of gender. anxiety may produce high blood pressure and hypertension in all males and females.

- The persistent elevations of BP and emotional responding of anxious individuals may lead to future hypertension (Markovitz et al., 1991, 1993).

- Dutt (1969) on sample of administrators: Nijhawan (1972) and, Ghosh & Singhal (1973) on samples of school and college students, found age and anxiety to be unrelated. However, Krishna (1971) and Srivastava & Sinha, M.M. (1974) reported negative relationship between these two variables.


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G. Rajmohan & A. Kuppan (1980) found no significant difference in the anxiety level of boys and girls in general. Moreover, girls with internal locus of control orientation scored high in the anxiety scale than old boys with the same personality dimension.

**Locus of Control:**

Internal perception of control reduces depression, anxiety, physiologically malaise, and alcoholism (e.g. Wheaton 1980; Pearlin et al., 1981; Elder and Liker 1982; Turner and Noh 1983; Seaman, seaman. and Budros 1988; Gecas 1989; Rosenfeld 1989; Mirowsky and Ross 1989; 1990), and thus indirectly
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reduces rates of physical illness and mortality (Bruce and Leaf 1989; Rodin 1986).

- Researches linking to age and locus of control show inconsistent and often contradictory results. In a review Lachman (1986) concluded that about one third of studies found low level of control among the elderly. one-third found high levels, and one third found no association between age and the sense of control. Rodin (1986) also concluded that there was little evidence of a decrease in perceived control with age. While. Verbrugge (1986) emphasized that subjective feelings of health and physical functioning, determine the perception of control for all generations.

- Bianchi and Spain (1996) exposed that the increasing divergence for their perception between men and women as they age, may be greater. Alternatively some observers argued that men and women are more equal in older age (Gove 1984).

- Compared with men, women face more economic dependency, restricted opportunities for paid employment, unfulfilling work, and unfairness in the division of household labor. All of these theoretically shape perceptions of powerlessness. (Ross & Mirowski, 1992; Ross & Sastry. 1999).

- Ross, C.E. and Mirowsky, J. (2001) revealed that the gender gap in personal control is greater among older persons than younger, and with increasing age time women’s sense of control declines more than men’s. Education, personal
employment history, household income and physical functioning account for some of the age based effect of gender on perceived control. Work fulfillment, fairness of domestic labor, economic hardship, and self-reported health do not, however.

**Blood Pressure:**

- Malhotra (1971) did not find any correlation between blood pressure and age in North and South Indian Railways workers.

- Slight lower blood pressure in females than in males was reported by a number of researchers (Master, Lasser, Jaffe and New York. 1958; Indrayan, Shrivastava and Bagchi. 1972b; Malhotra & Ganguli, 1976; Shrivastava, Varma, Kumar and Shrivastava, 1977; Mukhopadhyaya and Chakraborty, 1978; Gupta, Siwach and Gupta, 1979).

- Studies conducted on tribal, primitive and unacculturated populations  (Master, Lasser, Jaffe and New York. 1958; Kamin and Lutz, 1960; Baker, 1969; Marticorena, Ruiz, Severino. Galvez and Penalosa, 1969; Oliver, Cohen and Neel, 1975; Prior. 1978: Makela, Bartom and Scheull. 1978; Marmot, 1984). Revealed that, there was no rise of blood pressure with increasing age. It was assumed either due to unacculturation, non-exposure to urbanization, industrialization or isolation from the modern world of rush and affluence or low intake of salt.
- S.P. Gupta et al. (1977) found in their observation that - (i) the highest prevalence of hypertension was in the upper socio-economic group and lowest in the lower socio-economic group (ii) the prevalence increased with age and (iii) a higher prevalence rate was found in women compared to men after the 5th decade.

- Rao Sambasiva R. (1983) showed a rise of blood pressure with advancing age. Up to middle age, males show higher levels than females of the same age. while older females show higher mean pressures than males.

- Sharma, B.K. et al. (1985) revealed that Average systolic and diastolic blood pressures show a positive correlation with increasing age, body weight and economic status.

- Nirmala & Reddy (1996) proposed that means of both blood pressures increase with age, but the increase of diastolic pressure is not as marked as systolic pressure. In this study diastolic pressure was found decreasing after 60 years in both sexes. Significant sex difference was seen in younger ages for systolic pressure. But for diastolic pressure significant sex differences was evident only in the second decade.

- N.K. Goel and P. Kaur (1996) found that hypertension was about the same in the younger age groups and the prevalence of hypertension in rural India community increased with age, body weight, socio-economic status and salt-consumption.
On the basis of an entire view of the available literature, it might be concluded that although number of studies have been conducted on anxiety, locus of control and blood pressure in perspective of sex and age, finding of these studies are contradictory and vague still. It is also revealed by the literature that even though the quantity of such type of studies is more but mostly studies are conducted in the time period between 1950-80. For about 25 years there is a huge literature gap for such type of investigations. To fulfill the literature gap and to reinvestigate this literature in perspective of changing life style and modernization, present study was performed.

Again, blood group is remained a neglected factor in the field of psychology. Since, introduced lately, it has been an untouched variable for the social scientists and psychologists. A few studies, which have been done in this area, are mostly linked with physical diseases, mental diseases and personality factors. As far as the knowledge of researcher, no study has been conducted to link it with non-clinical anxiety, locus of control and blood pressure. Researcher has tried to put a milestone in this area by her contribution.

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