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Methodological study of the hypertension disorder: A meta-analysis

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Abstract-

Objective-*The main objective of the current study is to evaluate the various research designs and analysis techniques used in the varioushypertension studieswith psychological variables.*

Method-*The purpose of the current study is to evaluate the various research designs and analysis techniques used in the various hypertension studies with psychological variableson different webpage searched on published research works in the hypertension disease. We have included only original research articles in our study. Only 21 studies have been fulfilled criteria to be included in the present study.*

Result-*findings of the result in current study reveals that some analyses and research design were used commonly. Out of 21 researches, 8 research were logistic regression analyses, 1 two-way ANOVA, 1 logistic equation model, 1 descriptive and MANNOVAanalyses and 1 comparative analyses technique used. Other findings in research design were 2survey type, 3 cohort, 2 cross-sectional, 2 experimental, 3 observational, 1 longitudinal, 1mixed and 1 case-control design used.*

Conclusion-*Study reveals that the stressor, anger, anxiety and personality factor were associated in progression of hypertension, and some kind of regression analyses method (e.g. logistic regression, binary logistic, logistic equation model, Cox regression) anova, mannova techniqueswere highly used in experimental, observational, cross-sectional, cohort and other research design.*

Keyword- Hypertension, Psychological Variables, Research Design, Analyses Technique

Conflict of interest*- Authors have declared that no conflict of interest.*

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I. Introduction

According to the world health organization (WHO), thenon-transmissible disease will be the leading cause of functional disability in the next decade (WHO, 2000). Hypertensive adults will reach 1.5 billion by 2025; around 30% of the world, population (Kearney et al, 2005).The etiology of hypertension is multifactorial, which results from the combined influences of agenetic and environmental factor. It predisposes to coronary heart disease and cardiac dysfunction and has deleterious neurological effects on theretina, central nervous system, and kidney (Sharma & Sawhney, 2016). The specific causes of high blood pressure are not known, but several factors and conditions may play a significant role in its development, including: smoking, being overweight or obese, lack of physical activity, too much salt in the diet, too much alcohol consumption (more than 1 to 2 drinks per day), stress, older age, genetics, family history of high blood pressure, chronic kidney disease, adrenal and thyroid disorder and sleep apnoea (WebMD). The overall prevalence of raised blood pressure in adult population within anaged group of 25years and over was around 40% in the year 2008(Sharma & Sawhney, 2016). The sympathetic nervous system is claimed to play an important role in thedevelopment of essential hypertension (Sharma, 2012).

Hypertension is classified as either primary or secondary, about 90-95% of cases are termed as primary hypertension which refers to high blood pressure for which no medical cause can be found (Carretero, 2000). The remaining of 5-10% of cases that is secondary hypertension is caused by other condition (MAYO, thefoundation for medical education and research, 2008).

Objective-The main objective of the current study is to evaluate the various research designs and analysis techniques used in the various hypertension studies with psychological variables.

II. Method

The purpose of the current study is evaluating the various research design and analysis technique was used hypertension study in the psychological variables on adifferent webpage.Forondifferent web pagessearched on published research work in the hypertension disease. We have included an only original article in our study. Only 21 studies have been found on sufficient for inclusion criteria in the present study.

III. Result and Discussion

Psychological conditions are increasingly linked to the cardiovascular disease. Findings of the study reveal that the following table-

SN	Authors	Year	Country	Research Design	Tools	Sample Size	Data Analysis Techniques	Findings
1	James, et al.	2016		Survey	6-item Kessler psychological distress scale	2,88,784	Logistic regression modal	Psychological distress was associated with the higher level of blood pressure
2	Jones, Franks & Ingram	1997		Cohort study design	Anxiety and Depression scale	2992	Cox regression analysis	High anxiety and high depression were associated with hypertension
3	Sharma, et al	2012	Shimla, India		Personality, Stress and Anxiety scale	100	Two-wayANOVA	Male were showing ahigh level of type A personality and anger than female but female were showing high stress and anxiety than male
4	Agyei, et al	2010	Sub-Saharan Africa	Cross-sectional research design		212	Binary logistic regression analysis	20% of the participants were showing themild level of depressive symptoms and only 9% of participants have shown the moderate level of depressive symptoms with high blood pressure
5	Hamer, et al	2010			12-item general health questionnaire	33105	Logistic regression model	Distress was associated with the high blood pressure
6	Player, King, Mainous&Geesey	2007		Cohort research design		2,334	Secondary data in logistic regression	Survival analysis was showing the trait anger has associated with the progression of coronary heart disease
7	Elias, et al	1956 - 1964		Experimental design	Neuropsychological test	1702		Hypertension was associated with the pathogenic in mild cognitive impairment
8	Haynes, et al	1965 - 1967		Survey research design	Self- made tools by expert opinion	1822	Logistic equation model	The framing- hum type A behavior pattern and other psychological variables were not associated with the level of coronary heart disease
9	Kohn, et al	1972	Israel	Experimental research design	Biofeedback	101		Relaxation technique biofeedback was positively associated with the management of hypertension disease
10	Yan, et al	2000 - 2001		Observational study design		3308	Logistic regression analysis	Time urgency/impatience(TUI), achievement strategy/competitiveness (ASU), hostility, depressionand anxiety were associated with the hypertension
11	Kwek, et al	2002	America	Cross-sectional research design	Health-related quality of life	1094	Descriptive and Manova analyses	Physical and mental componentsweresignificantly associated with the hypertension
12	Ross, Wolkar& MacLeod	2004	United Kingdo	Observational study	Illness perception	514	Logistic regression	Belief about illness perception and medication

			m		questionnaire		analyses	were interconnected in the hypertension
13	Friedman, et al	2001	New York, America			283		Job strain (situational stress) was associated with hypertension
14	Krieger	1990				101		Subjective appraisal stressor was associated with hypertension
15	Rosengren, Houken, Oumpuu, Sliwa&Zubaid	2004	52 countries	Case-control design	Four item questionnaire	24767	Logistic regression analyses	General stress work and home stress were associated with the hypertension
16	Vrijkatte, van Doomen&Geus	2000				109	Logistic regression analysis	Work stress was partially mediated in the hypertension
17	Schneider, Egan, Johnson, Drobry& Julius	1986		Observational study design	Spielberg state-trait personality test, anger expression scaleand the state-trait anxiety reaction scale			Anger was positively associated with the hypertension
18	Kilander, Nyman, Boberg, Hansson &Lithall	1998	Sweden	Cohort study		999		Hypertension and cognitive impairment were strongly untreatable associated with men
19	Barksdale	2009 - 2012	America	Longitudinal study design		128	Comparative analyses	Chronic psychosocial stressors, daily hassles, racial discrimination and financial were positively associated with hypertension
20	Kretchy, Owusu-Daaku, Danquah&Asampong	2015		Mixed method research design			Logistic regression	Depression, anxietyandstress were associated with hypertension disease
21	Sharma & Sawhney	2016	Jammu & Kashmir, India		DASS-21			10% patients were showing in depression, 70% were anxious and 10% were stressed on the disease of hypertension

Reveal that the above the table had shown in different researcher were used in deferent research design and analyses technique. Some research design and data analyses method were maximum uses and some were minimum. James et al (2016) Hayness et al (1965-1967) were used in survey type of the research design. Player, King, Mainous&Gessey (2007); Kilander, Nayman, Boberg, Hansson &Lithall (1998);Jones, Franks & Ingram (1997) were used in cohort study design, Agyei, et al (2010) &Kwek et al (2002) was used in thecross-sectional design.

Another study Elias, et al (1956-1964) & Kohn et al (1972); were used in the experimental research design in their research. Yan et al (2000-2001); Ross Walkar& MacLeod (2004)& Schneider, Egan, Johanson, Drobry& Julius (1986) were used in the observational research design.Rosengren, Houken, Dumpuu, Sliwa&Zubaid (2004) was used in case-control study design; Barksdale (2009-2012) was used in longitudinal research design and asimilar study was used in mixed method research design(Kretchy, Owusu-Daaku, Danquah&Asampong, 2015).

For the purpose of meta-analyses, we are analyzed in data treatment technique in adeferent research article. We are found in deferent researcher were using in the deferent analyses method e.g. James, et al (2016); Jones, Franks & Ingram (1997); Agyei, et al (2010); Hamar, et al (2010); Player, King, Mainous&Geesey (2007); Haymess, et al (1965-1967); Yan et al (2000-2001); Ross Wolkar& MacLeod (2004); Rosenberg, Houken, Oumpuu, Shiwa&Zubaid (2004); Vrijkatte van Doomen&Geus (2000) &Kretchy, Owusu-Daaku, Danquah&Asampong (2015) were used in diferant kind of regression analyses model in data treatment such as cox regression, binary logistic regression, logistic regression, logistic equation model. A logistic regression model was used in ahigher number of different research. One researcher was used in Annova technique and one another researcher was used in Mannova analyses technique on data treatment.

Findings of the meta-analyses shown in some psychological factors were correlated in higher such as distress, anger, anxiety and personality trait. James, et al (2016); Sharma, et al; Friedman, et al (2001);

Rosengren, Houken, Oumpuu, Sliwa&Zubaid (2004);Vrijkatte, van Doomen&Geus (2000) these are found in their study, the stress and other any type of chronic and severe stressor is highly associated hypertension. Barksdale (2009) indicated that the chronic psychological stressor, daily life hassle, racial discrimination and financial burden was associated with the progression of hypertension. Kretchy, Owusu-Daaku, Danquah&Asampong (2015) suggested that depression, anxiety and stress were associated with hypertension disease. Sharma &Shawey (2016) reveal that the 10% hypertension patients were showing depression, 70% were anxious and 10% were stressed.

Similar studies Schnieder, Egan, Johnson, Drobry& Julius (2000) investigated that the anger was positively associated with hypertension. Jones, Franks & Ingram (1997) reveal that high anxiety and high depression were associated with hypertension disease. Sharma et al(2012) find that the male person was ahigh level of type A personality and anger but femaleswere high stress and anxiety. Another study shows that the trait anger has associated with the progression of heart disease (Player, King, Mainous&Geesey, 2007). Kwek, et al (2002) find that the physical and mental component was significantly associated with hypertension. Ross, Wolkar& MacLeod (2004) suggested that belief about illness perception and medication were interconnected in hypertension. Kohn et al (1972) suggested that the relaxation and biofeedback were positively associated with the management of hypertension disease.

IV. Conclusion

Reveal that the study we concluded that stressors, anger, anxiety and personality factor were associated with progression of hypertension, and some kind of regression analyses method (e.g. logistic regression, binary logistic, logistic equation model, Cox regression)ANOVA,MANNOVA technique was highly used in experimental, observation, cross-sectional, cohort and other research design.

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