

Broken Heart Syndrome: Folklore or Reality?

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Abstract

Previous research has revealed that psychological and emotional shock is related to sudden death. This type of death has been referred to as Broken Heart Syndrome. However, sudden death does not always occur after an individual has experienced a shock. History of a positive psychological wellbeing and resilience has been linked to survival of the widowed individual after the death of a long-term spouse. The purpose of this research was to determine the presence of Broken Heart Syndrome in the surviving spouses of a long-term relationship. Data was collected using the Obituary section of The Oregonian newspaper over a period of eight months. Names of widowed individuals (N=1697) were recorded, along with age, gender, name of deceased spouse, year spouse died, calendar year couple was married, years married, and number of years widow survived. These widows were tracked for information regarding survival and remarriage over the eight month period during data collection. Independent T-tests, Pearson's correlations and frequencies were run to determine significance for our hypothesis. Statistical analysis supported the hypothesis after the death of a long-term spouse, the surviving widows will not succumb to broken heart syndrome but will instead, live longer than the first year of bereavement.

Key Terms: Broken Heart Syndrome, Psychology of a Broken Heart, Dying of a Broken Heart, Stress Cardiomyopathy.

Introduction

For years American folklore has depicted the surety of a widowed spouse succumbing to death as the result of sadness shortly following the loss of a long-term partner. Tales are told of relatives and friends whose spouse passed away and the remaining partner dying soon thereafter of a broken heart. When death occurs resulting from Broken Heart Syndrome (BHS) it is assumed the surviving husband or wife must be experiencing deep sadness and they cannot continue existing without the companion they lived with for many years. The cultural implications of death from Broken Heart Syndrome are romantic in nature; it is idealistic to believe people love for life, therefore, life simply cannot be lived without a soul-mate.

The intent of this study was to explore the current research and determine the authenticity ascribed to what is referred to by the media and various researchers as Broken Heart Syndrome; if it truly exists or if it is only a romantic notion.

Historically there has been no scientific explanation for the abrupt death of an individual after an intense emotional or psychological trauma. In the past, sudden death after a traumatic event was attributed to a heart attack due to the similarity in symptoms such as fluid build-up in the lungs, chest pain and shortness of breath (Esler, Lambert & Alvarenga, 2008; Gray, et al., 2007; Virani, Khan, Mendoza, Ferreira, & (de Marchena, 2007; Enserink, 2005). In 1997, Dr. Pavin of University Hospital in Rennes, France was the first to discuss BHS by giving an account of stress cardiomyopathy in two patients who did not suffer from heart disease (Enserink, 2005). However, there was only speculation as to what could cause a patient to suffer a heart attack without having preexisting heart disease. Doctor Pavin theorized (Enserink, 2005) that the stress hormones, referred to as catecholamines, may be the culprit in producing the condition. Recent studies confirm his theory.

The information currently available reveals a certainty of physical reactions in the heart when emotional or mental shock occurs. Several case studies have been conducted regarding the physiological effects from emotional and psychological distress. Sudden emotional or psychological stress can be brought on from events such as winning the lottery, hitting a hole in one after 40 years of unsuccessful golfing, experiencing a car accident, attending a court appearance, the shock of a surprise party, or hearing the news of a loved one dying (Lewis, 2005). When a sudden shock like this takes place, catecholamines are produced in massive quantities and dumped into the bloodstream. In the cases studied by Dr. Engel all patients who experienced sudden shock or chronic stress had levels of stress hormone at 3 and 4 times greater levels than patients with coronary infarction (Lewis, 2005). This overflow of stress hormone when it reaches the heart can cause what medical science and researchers refer to as myocardial stunning; a reduced function of heart contraction. If severe enough, heart attack can occur (Wittstein, et al., 2007).

The scientific evidence has revealed that stress hormones do have an effect on the heart and can induce extensive damage to heart muscle (Esler, Lambert & Alvarenga, 2008; Gray, et al., 2007; Virani, Khan, Mendoza, Ferreira, & de Marchena, 2007; Wittstein, et al., 2007). A team of medical researchers led by Dr. Wittstein (2005) discovered that women's hearts appear to be more vulnerable to stress hormones than men's with no definite explanation for this fact. According to Dr. Wittstein (2005), the unusual finding, is that men produce more stress hormones than women during stressful events, so it could be hypothesized that men would

then be more vulnerable than women, but this is not the case. It is possible that sex hormones are the reason for the differences in response to catecholamines and susceptibility to stress cardiomyopathy but further research is needed to understand more about this complex system (Wittstein, et al., 2005).

Prolonged chronic stress can also result in rhythmic changes in heart contractions and can compromise functioning of the left ventricle (Gray, 2007). While chronic stress does not cause an immediate dumping of stress hormone into the blood stream, it does however keep stress hormone levels higher than normal which can affect the LV and result in stress cardiomyopathy.

Cardiomyopathy is a thickening, and weakening of the heart muscle, particularly in the Left Ventricle. This thickening of the heart muscle can be caused by several factors; prolonged very high blood pressure, damage from suffering a heart attack, alcoholism, viral infections, and genetic disorders (Virani, Khan, Mendoza, Ferreira, & de Marchena, 2007). While physicians do know some of the listed causes for cardiomyopathy, they still have not identified every cause (Esler, Lambert & Alvarenga, 2008; Virani, Khan, Mendoza, Ferreira, & de Marchena, 2007; Wittstein, et al., 2007; *The Free Dictionary*, 2010).

In light of research findings, stress cardiomyopathy, also known as catecholamine mediated myocardial stunning (Virani, Khan, Mendoza, Ferreira, & de Marchena, 2007), tako-tsubo cardiomyopathy (Virani, Khan, Mendoza, Ferreira, & de Marchena, 2007) and broken heart syndrome, is very possibly a condition that affects more people than previously realized (Esler, Lambert & Alvarenga, 2008; Gray, et al., 2007; Virani, Khan, Mendoza, Ferreira, & de Marchena, 2007; Wittstein, et al., 2007).

In review of the medical findings, BHS clearly exists. Beyond the medical research, several studies have been conducted discussing the social and psychological aspects of widowhood such as coping, adjustment, resiliency, gender differences and social support. These aspects may be key factors to BHS taking place for those who have lost a long-term spouse.

Psychology of a Broken Heart

In 2007, the United States Census Bureau listed that approximately 44% of women and 14% of men aged 65 years and older were widowed. Most researchers agree that women make up the majority of the widowed population and believe the reason for this number is the fact women are living longer than men (Taga, Friedman & Martin, 2009; Carr & Utz, 2002; Mineau, Smith & Bean, 2002). Research for years has proven there are obvious differences between the sexes and in regard to widowhood there are also differences between both genders.

Coping with grief in widowhood is a difficult challenge, and the death of a long-term spouse is among the most stressful of life events. Suffering the loss of a spouse can be debilitating for the surviving widow, because the change from cohabitation with a constant companion to living alone is in itself, a traumatizing experience. While transition involves the stress of grief, it also entails caring for household responsibilities, and performing tasks previously taken care of by the missing partner (Carr & Utz, 2002). Coupled with the pain of loss, the challenge of learning new responsibilities only adds to the widow's struggle to cope with the bereavement he or she is experiencing (Subramanian, Elwert & Christakis, 2008; Lee, DeMaris, Bavin & Sullivan, 2001). Older widows today are more likely to experience loss as a gradual process due to terminal illness, and expected deaths that result as a slow process

create a raised level of anxiety for the surviving spouse that is lasting for both short and long term making it difficult to cope. Negligent deaths are especially difficult for the surviving spouse to cope with and adjust to (Carr & Utz, 2002).

Psychological wellbeing before a loss is an important factor for coping with grief. Emotional and mental wellness throughout the individual's life has been shown to increase the likelihood of transitioning through the bereavement period with less challenge (Subramanian, Elwert & Christakis, 2008; Taga, Friedman & Martin, 2009; Bennett, 2005). A personal account of coping with loss is Schulte's (2008) point that there are more widowed women than men. Available widowed women will overwhelm the newly widowed man with food and attention. This bombardment rarely results in the widowed man choosing to marry the widowed woman, as men typically marry younger women. The reality is that most widowed women will have to remain alone and adjust to the remainder of their life living alone (Shulte, 2008). Shulte accounts for four years of transition into independence. Her grief is no longer as painful; however, her husband's memory is still very close. "The clear majority of widowed persons who do not remarry live for many years following widowhood" (Mineau, Smith & Bean, 2002, p., 253).

According to Bennett (2005), both older women and men who are recently widowed are likely to have a poorer psychological wellbeing, and are shown to have a decline in social engagement and morale. However, a study conducted in 2002 by Mineau, Smith & Bean revealed that coping is greatly affected for the oldest of those currently in widowhood, by attending church regularly and finding a new spouse.

In 2002, a study conducted by Carr & Utz revealed adjustment to the loss of a partner varies with the manner in which a spouse dies. A prolonged death related to illness or sudden death both have powerful affects on the surviving widow. Also discovered in this study were marriages that are filled with warmth and interdependence result in widows experiencing deeper yearning while strained relationships result in less yearning. Women who have lost a husband to sudden death were found to exhibit more depression and yearning than women who lost a husband to a prolonged illness. Men who have lost a wife to a prolonged illness exhibited more depression and yearning than men who lost a wife to sudden death (Carr & Utz, 2002). The researchers concluded women whose husbands died suddenly were unable to make resolution with their spouse and not prepared to deal with the loss. The researchers also concluded that men who lost their wives to a prolonged death felt powerless in preventing the death from happening (Carr & Utz, 2002). Overall, most individuals do adjust to widowhood (Bennett, 2005; Telonidis, Lund, Caserta, Geralnik & Pennington, 2005; Mineau, Smith & Bean, 2002; Lee, DeMaris, Bavin & Sullivan, 2001; Neiboer, Siegwart & Lindenberg, 1999), though in some cases, approximately 30%, adjustment is unattainable for the remaining partner (O'Rourke, 2004).

Better overall health has shown positive results for widows to experience less depression. Widowed men and women, who report feeling well, are less depressed than those who are in poor health (Lee, DeMaris, Bavin & Sullivan, 2001; Bonnano, Wortan & Neese, 2004). In a study conducted by Lee, DeMaris, Bavin and Sullivan (2001), married men were found to be far less depressed than married women or widows of both genders. These researchers discovered that men are widowed an average of 5 years less than women (p. S60), and men are more likely to marry a new spouse. However, when men become widowed at an advanced age, they are less likely to remarry. Researchers agree that widowed men are more depressed than widowed women because they have lost the emotional support they once

received from their wife, and marriage has been found to be a strong deterrent for depression amongst widowed men (Mineau, Smith & Bean, 2002; Lee, DeMaris, Bavin & Sullivan, 2001). Loneliness and depression experienced by widowed men may be an explanation for the likelihood to remarry. While remarriage can bring a positive change to the widowed man's life, there are aberrant behaviors exhibited by some widowers that keep them in distress (Taga, Friedman & Martin, 2009).

Taga, Friedman and Martin (2009) discovered that widowed men who were extroverts were likely to have poor health linked to smoking and drinking alcohol. They concluded that extroverted widowed men "turn to behavioral coping methods involving unhealthy habits" (p. 683). In contrast, this group of researchers also discovered that men who exhibit adult Neuroticism behaviors such as psychological anguish and mental strain can lead to beneficial health behaviors such as adhering to medical advice and refraining from tobacco and alcohol. Similarly, men diagnosed with Neuroticism who had to care for an ailing wife will be more diligent with their own physical symptoms and will continue protective health practices (Taga, Friedman & Martin, 2009). In review of this research, women were not found to exhibit the same Neurotic behaviors, though differences were discussed between the genders.

Resilience

Resilience plays a very important role in the healing process for those who are grieving. It is especially vital to the elder widow. In 2009, Taga, Friedman & Martin conducted a study on widowhood and mortality risk and early personality traits. Within this study they discovered widowed women who had been alone for many years, live longer than married women the same age.

An example of resiliency was revealed in a 2005 study conducted by Telonidis, Lund, Caserta, Guralnik & Pennington when they discovered that disabled women exhibited more resilience to coping with widowhood than nondisabled women. The disabled widow, having the ability to cope more successfully than the nondisabled widow, is thought to be attributed to dealing with the challenges that living with a disability brings daily. However, one does not need to have the predisposed factor of physical challenges to assist with coping and adjustment. Chentsova-Dutton and Zisook (2005) agreed that the typical problems associated with bereavement are not necessarily universal and they found over half of widows in their study adapted within two months after the loss of their spouse, and some of them with great success.

The ability to survive the pain of grief and adapt quickly was also demonstrated in a 2004 study conducted by Dr. O'Rourke when he discovered that widowed women who were committed to living life, who perceived they were in control and who were accepting of change, exhibited a positive orientation toward their future. For these women, their resiliency assisted them in perceiving widowhood as a significant life event from which they had moved on. These women did not let widowhood define their existence.

Resilience is different for everyone and can be a vital tool to assist in successful transition for the widowed individual. Many factors can play a role in resilience; personality traits, life challenges and experiences, and quality of marital relationship all appear to have an effect on the ability to cope with the loss of a spouse. A review of the research has revealed there is no definitive answer for what makes one widow more resilient than another.

Social and Family Support

The family is more supportive of the widowed woman than the widowed man. Lee, DeMaris, Bavin and Sullivan (2001) found that widowed women receive more help from their children than do the widowed men. Unfortunately, widowed men suffer from a lack of social support as they do not receive help from, nor give help to their children, they do not attend church as often and they withdraw from married friends (Lee, DeMaris, Bavin & Sullivan, 2001). Carr & Utz theorized that gender socialization over the life span determines how widowhood is experienced. In contrast to the current trends with social support being influenced by gender role socialization over the life span, the changes in gender roles for men and women over the past forty years will change how future generation of widows experience widowhood. The widows of the future will not have the same challenges due to the social role changes for men and women (Carr & Utz, 2002). An example of these role changes is women becoming more independent with family, employment and self identity, and men becoming less rigid in their role as the head of the household in the course of integrating the roles of homemaker and single parent.

Subramanian, Elwert & Christakis found in their 2008 study that neighborhoods with a higher concentration of widows decreased the risk of mortality within the widowed population (Subramanian, Elwert & Christakis, 2008). It is becoming more common for neighborhoods to consist of widowed individuals and less typical for widows to live in neighborhoods consisting of married couples and families. Assisted living facilities continue to grow in number and it is more common for older widows to find social support through participation in social functions and activities. Renewing and forging new friendships helps to replace the missing companionship and aids in a healthy psychological wellbeing (Subramanian, Elwert & Christakis, 2008; Shulte, 2008). Due to the social environment of widow-concentrated neighborhoods, a positive change in the condition of bereavement has taken place.

A review of the research has revealed the medical explanation for possible causes of BHS, and also uncovered some of the challenges in survival of widowhood. These challenges include psychological and emotional wellbeing, coping, adjustment, resilience, and social support. The possibility of a death resulting from BHS in widowhood and the exploration of how many widowed individuals are affected by BHS was not discussed in the Sociological and Psychological literature. The question raised from a review of the research does not involve the existence of Broken Heart Syndrome, but rather, the query brought forward is how prevalent the presence of BHS is within the population of older widows who have lost a long-term spouse. The hypothesis extrapolated from this literature review is that following the death of a long-term spouse, the average number of surviving widows will not succumb to sudden death resulting from broken heart syndrome but will instead live longer than the first year of bereavement.

Methods

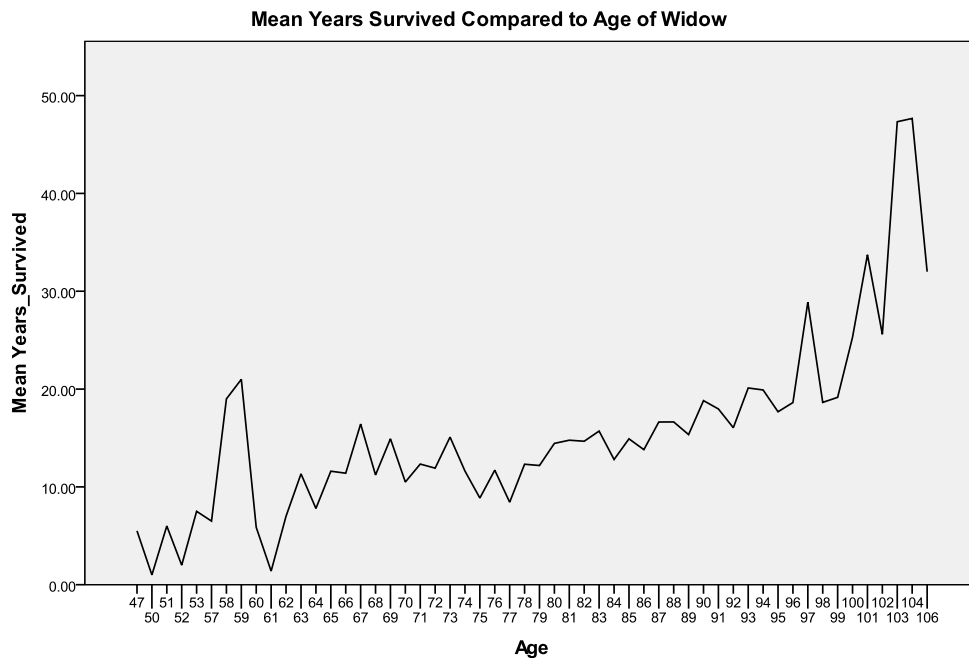
Data collection was achieved through daily recordings obtained from the Obituary section of The Oregonian newspaper of Portland Oregon. Data was collected from November of 2006 until July of 2007. Collected for this study were the names of the surviving widows, age, sex, and years survived after the death of their spouse and the date of remarriage if the widow had remarried. Also collected was the name of the deceased spouse, the year the spouse died, the year the couple was married, and the total years the couple was married.

Results

An independent T-test revealed a statistically significant difference between widowed men ($M = 11.21$, $SD = 9.99$) and widowed women ($M = 17.76$, $SD = 13.00$) and the years survived after the loss of a long-term spouse $t(1695) = -9.55$ $p = .000$.

An independent T-test revealed a statistically significant difference between how many years men ($M = 46.74$, $SD = 14.32$) were married before becoming widowed and how many years women ($M = 42.84$, $SD = 15.81$) were married before becoming widowed $t(1711) = 4.57$, $p = .000$.

A Pearson's correlation revealed a statically significant positive correlation between age of widowed individual and years survived $r(1697) = .256$, $p < .000$. So as the amount of years that a widowed individual lives increases, the number of years an individual survives the death of a spouse increases.



A Pearson's correlation revealed a statistically significant negative correlation between the number of years an individual was married and the number of years an individual survived after the death of a spouse $r(1697) = -.605$, $p < .000$. So as the number of years an individual had been married before becoming widowed increases, the number of years the surviving widow lives, decreases.



Discussion

The purpose of this study was to investigate the prevalence of Broken Heart Syndrome in surviving widows who have lost a long-term spouse in Oregon. From November 2006 until July of 2007, data was collected from the obituary section of The Oregonian newspaper. This paper was chosen for data collection as it would result in a better sample for this study due to its representation of the largest population in Oregon. Out of the 1697 participants, 70.2% were women, and 29.8% were men. The majority of these widows had been married for 30 years or longer. An interesting discovery was the number of women in this study who remarried versus the number of men who remarried. Researchers agree that widowed men are five times more likely to remarry than widowed women (Lee, DeMaris, Bavin & Sullivan, 2001). The data in this study revealed that in Oregon between 2006 and 2007, widowed women were more likely to remarry than men. The higher number of widowed women who remarried in the study was due to a higher ratio of younger widows (under the age of 65) than older widows. If the younger women were removed from the equation, the results would agree with the previous research findings of widowed men being more likely to remarry than widowed women (Mineau, Smith & Bean, 2002; Lee, DeMaris, Bavin & Sullivan, 2001).

The statistical significance of the independent T-test between men and women and the amount of years both genders survive reveals that widowed women tend to live longer than widowed men. This can be explained by the fact that women are now living longer than men in the 21st century. There is also the possibility that the lower number of male participants (29.8%) in this study compared to the female participants (70.2%) may account for the disparity between the genders for survival in widowhood. The significance found in the negative correlation between the total years a widow was married and the length of time survived after the death of a spouse may be a result of the widow being married for thirty years or longer and being in the latter age of the life-span. In other words, the elder widowed adult may not survive their long-term spouse due to the challenges of older age coupled with the challenges of widowhood and grief. It is interesting to note that the positive correlation between length of

chronological age and length of survival reveals that the widows who survived for the greatest number of years, are those who were widowed young and lived the longest.

Previous research has established that the critical time for survivor death to occur is within the first week of bereavement. The second most critical time for survivor death to occur is within one month of a spouse dying. The rate of death for the surviving spouse rapidly declines for the next eleven months (Ajdacic-Gross, Gadola, Lauber, Bopp, Gutzwiller & Rössler, 2008). Unfortunately, there is nothing in the data giving an explanation for the deaths of the 5.5% in this study that died within the first year of losing their spouse.

According to the previous research findings for critical time of survivor death, one could speculate that the two participants in the current study, who died within a week of their spouse, may have died of a broken heart. Seventy of the people in the current study passed away at the one year mark. According to the critical time of survivor death, these people fall into the dying of a broken heart category as well. However, without definitive answers to what caused their death, for example, accident or long-term illness, there is no conclusive connection to Broken Heart Syndrome as reason for death. Obtaining a reason for death in future research would create validity and lend credence to the study of BHS.

Conclusion

In conclusion, it is clear that Broken Heart Syndrome exists and the results of the data from this research reveal a small percentage of possible BHS cases. The evidence of prior studies has shown widowhood is the most difficult of life events and that a small percentage of the survivors do not live for more than one year after the death of their spouse. The current scientific research studies have also proven the physical presence of stress cardiomyopathy occurring after a traumatic event such as the death of a loved one. Our research has revealed 5.5% of those reported in the Obituary section of The Oregonian newspaper, died within one year of the death of their spouse. However, the remaining 94.5% of participants who survived longer than one year gives some support to the hypothesis that following the death of a long-term spouse, the average number of surviving widows will not succumb to sudden death resulting from broken heart syndrome but will instead live longer than the first year of bereavement.

The information regarding widowed men is very scarce. Future research in BHS focusing on widowed men would provide more insight regarding an accurate survival rate following the death of a long-term spouse. A focus on widowed men would also bring a better understanding of the psychological and sociological facets of widowhood and BHS for the widowed man.

A review of the previous research within the social sciences has shown a deficit in the study of BHS in widowhood. A closer look at the causes of death surrounding the widows who do not survive the first year of widowhood would provide more conclusive information for research in BHS.

The literature review produced very little research regarding race, ethnicity, and cultural and spiritual beliefs relating to the death of a long-term spouse and Broken Heart Syndrome. Investigating the differences between these demographics may reveal strengths and weaknesses regarding bereavement and BHS that could prove beneficial for psychological and sociological research and theory in the future.

Completely missing from the research is the exploration of Gay and Lesbian long-term relationships in relation to BHS. No studies have been conducted to determine the survival of

widowed same-sex partners, which could be beneficial for determining the services needed for Gay and Lesbian widows as they experience the bereavement process and transition into widowhood.

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