Critical Events and Mental Health

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Abstract

This thesis aims to assess whether there is a relationship between critical events and the health of students as well as teachers from 35 primary schools and 9 high schools in the Ostrobothnia region. The KLUCK 2 project was conducted in January 2009 by questionnaire. The work of this thesis was to analyze one of those questions to learn about the relationship between critical events and health.

A quantitative approach has been applied to this study and the data analysis was carried out according to Statistical Package for the Social Sciences. The results show that the health of students and teachers is affected equally by negative critical events. Mental health promotion service and nursing guidance for nurses is also discussed in this study.

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1. Introduction

Health has become a popular topic all over the world. People pay more attention to their health nowadays, which can be shown in the media on a daily basis, people are, for example, reading health magazines or newspapers, watching health programmes on TV and applying the information from those into their lives to keep healthy. However, psychological aspects onto health is easily overlooked. Mental health is an indivisible part of health which presents the equilibrium between the individuals and environment. Social interactions, individual factors and experiences, societal structures and resources and cultural values are the determinants of mental health (Lavikainen et al, 2000).

Stress can have positive or negative effects on human beings. Positive stress will increase the motivation of people to achieve their goals, for instance, the drive to be successful. However, today's society is full of negative stress which leads to mental problems among the population. Human beings should react to incidents that happen in their life, such as, car accidents, severe diseases, family members passing away etc., to maintain their normal physical and mental functions . If people are not allowed to express their responses to these events, they may develop mental problems that can result in physical diseases and eventually influence health.

To promote health, mental health cannot be ignored. In order to achieve this goal, efforts of whole societies, communities, social groups, risk groups and individuals and healthcare givers are all significant in the whole process. In practice, nurses should enhance the knowledge of mental health care interventions, and improve health, and diminish suffering

and he or she should also provide education that aims at reducing mental disorders and providing social integration.

This study is a part of the KLUCK 2 project, which is funded by the European Regional Development Fund Botnia-Atlantica (EU), the Regional Council of Ostrobothnia (Finland), the County Administrative Board of Västerbotten (Sweden), Umeå University (Sweden) and Novia University of Applied Sciences. The purpose of that project was to enhance knowledge on indoor air issues in Ostrobothnia and Västerbotten. One of the projects started in Vaasa aimed at sampling chemical compounds inside building structures.The other one focused on knowledge of health among teachers and students in Ostrobothnia schools. (KLUCK 2, w.y.)

2. Aim, Assumption and Problem Definition

The aim of this study is to see if critical events affect the health of teachers and students from 35 primary schools and 9 high schools in the Ostrobothnia region. The research questions are:

1. Are students or teachers more easily affected by critical events?

2. What kind of critical events has a significant impact on health?

The respondents had pre-assumptions concerning the aim before the study was originated. From previous experience in life, studies, and news, we can assume that critical events

affect health. According to our understanding, critical events are accidents which are unexpected, such as, car accidents, natural disasters, death and divorce. These events have a significant impact on the life of human being at different stages. To provide a more comprehensive understanding of this assumption, we choose the car accident to illustrate how it can affect health. When people are informed by the police or a nurse that a family member has died in a car accident, family members first act in disbelief regarding what has happened. Depression may then appear, and in some cases, lead to alcohol abuse, which may in turn results effects of brain damage, cardiac diseases and insomnia. (Beckham, 2004) One can, thus, draw the conclusion that critical events can influence both physical and psychological health in some situations.

The first step is to set a range of critical events of people experiencing in their lives. These specific events at least can reflect different aspects of people's daily life, such as marriage, economy, children and diseases. When events happening also need to be taken into account, because if it had happened many years ago, it is difficult to make accurate evaluation about the effectiveness. Teachers and students can be divided into two groups, it helps to see the reaction of critical events varying among different age groups. (KLUCK 2, w.y) The theme will be extracted from those different incidents to see how people who suffer from the critical events can be supported.

According to the research of Tache and Selye (1985), any kind of life event can lead to some stress (Rice, 2000, 32). In other words, critical events would also cause stress. It is well known that stress can do a lot of harm to health, thus, the implication can be drawn that critical events would affect health. There is very little research done in this field in

Finland, and people nowadays lay much more emphasis on mental health. This study would provide healthcare givers with more detailed information about the health-related effects of critical events.

3. Theoretical Background

As Hill-Rice (2000, 8) mentions in her work, plenty of research shows that critical events will lead the stress. The definition of critical events which is discussed in chapter 3.2 outlines how there are positive and negative critical incidents. Negative critical events are concentrated in this study, and they include illness, divorce, and death.

3.1. Roy Adaptation Model

The Roy adaptation model is developed based on Harry Helson's theory of psycho-physics, which expanded in social and behavioral sciences (Roy, 1984). Callista Roy emphasizes heavy stress theory in an adaptation model, and interprets stress on a person's adaptive level. She also describes how adaptation can encourage people to embrace survival, growth, reproduction and mastery (Hill-Rice, 2000, 35). She regards the human being as a holistic adaptive system: different phenomena in the human adaptive system is composed of an internal and external environment and influences people's development and behavior. When they start to interact with others in their environment, they are always affected by and influence surroundings at the same time. Stimuli is often are derived from an environment which can promote of threat to people's existence. People must have effective

and positive responses to environmental stimuli to survive.

There are three types of stimuli in adaptation model: focal stimulus always has immediate effect on individuals. Contextual stimuli consists of all the other stimuli that appear due to focal stimulus, and finally, residual stimuli refers to unclear effects and may affect focal stimuli (Roy,1984).

In Roy´s (1984) model, there are four adaptive modes that present behaviors in the adaptive process when humans encounter the environment stimulus (Figure 1).
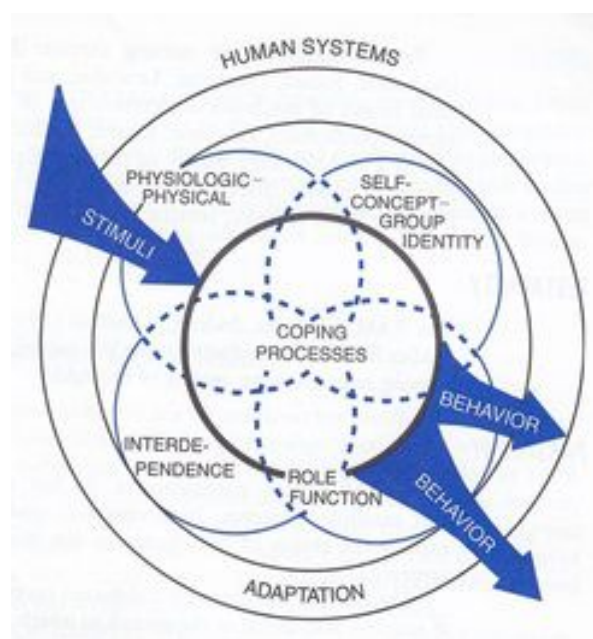

Figure 1. Diagrammatic representation of human adaptive systems. (From Roy, C., & Andrews, H.[1999]. The Roy adaptation model [2nd ed.]. Upper River Saddle, NJ: Pearson Education, Inc.)

The stimuli response occurs throughout these four adaptive modes and they are interrelated through people's perception. The physiologic-physical mode focuses on the way people

meet their basic demands in the psychological process by interacting with the environment. Oxygenation, nutrition, elimination, activity and entertainment, and protection are included in the basic needs. The self-concept group identity adaptive mode outlines cognition of oneself and how to behave in society, which consists of the physical and personal self. The role function adaptive mode illustrates the basic, secondary and tertiary roles in the society, and the role consists of the expectations that one person communicates to others in society. The interdependence adaptive mode's major goal is to offer and gain care, love, respect and value. The most significant parts in this mode are one's family members, friends, God and one's social support system. Achieving social, psychological and physical integrity is the purpose of these four adaptive modes (Roy & Andrews, 1999).

Based on the above discussion, one can draw the conclusion that an overload of work pressure, a fast-paced lifestyle, single interpersonal relationships, reality and complexity all lead increasingly large psychological pressure in modern. Even though these forms of stress are noticed nowadays, many people still are suffering from such pressure. Stress release   is a key point to prevent further suffering. It is, thus, necessary to conduct research that investigates stress factors in daily life.

The Roy Adaptation Model defines the nursing process and can provide a comprehensive guidance to clinical practice. Her model points a way for nursing practice to provide a comprehensive care to patients. Nursing aims at promoting adaptive responses, and this goal is achieved through Roy's six-step nursing process: evaluating the behaviors indicated by the four adaptive modes, assessing the stimuli and classifying them into focal, contextual and residual stimuli, drawing a conclusion or nursing diagnosis of the patient's

adaptive status, setting goals to promote adaption, implementing the interventions aimed at handling the stimuli to promote adaption, and assessing whether the adaptive targets have been achieved. (Raile & Marriner, 2009, 345)

In her theory, health definition is defined as "being and becoming integrated and a whole person which is reflection in adaption of interaction between people and the environment" (Andrews & Roy, 1991, 21). Thus, when people are ineffective to coping with environmental changes or stimuli, the illness presents. It is not difficult to understand failure in coping with stimuli would lead health problems, which can be mental or physical illness.

3.2.   Definitions

Woods (1993a, 102) states that if an event owns the 'right mix of ingredients at the right time and in the right context' that forms a critical event (Webster & Mertova, 2007). The critical events can have a positive or negative impact on people's life, and 'counter incidents' refer to negative critical events (Sikes et al, 1985). However, most researchers concentrate on the positive impact from critical events, and we can reveal people's worldview and understanding from critical events (Webster & Mertova, 2007, 74). Woods (1993a, 1993b) mentions that critical events can mostly be predicted, however, critical incidents are impossible to anticipate and plan (Webster & Mertova, 2007, 75).

There are three common types of critical events: external critical events, internal critical events and personal critical events. External critical events issue from historical and

political events; internal critical events happen with the development of a career in a natural manner; the last type is mainly concerned with family affairs, diseases, etc (Webster & Mertova, 2007, 74-75). Critical events could contain traumatic elements which lead to change people's experience, even worldview. When people encounter critical events, they may have difficulty in combining their own worldview with their realistic experience from critical events; eventually the conflicts between their faith and reality stimulate them to struggle with changes in life and try to adapt these changes to form a new belief (Fay, 2000).

Critical events become significant because they have a profound impact on people who encounter these events. Webster and Mertova (2007, 83) identify critical events through following certain characteristics: they occur in a specific circumstance and influence people who get involved, bring life-changing results. They are also uncontrolled, unanticipated, and can be identified afterwards and stimulate an individual with strong emotional involvement. For mental health professionals, crisis intervention, on-scene support services and follow-up services are all methods that can support people who are suffering from critical events.

Stress can be either positive or negative. Positive stress drives people to efforts that will fulfill their goals. For instance, professional athletes are encouraged by positive stress to attain better results in the competitions. However, negative stress is always connected to anxieties and worries, which could lead to more mental illnesses, such as burnout and depression. This study is mainly focused on the negative stress impact on health. Selye (1976, 64) defines stress is *"a state manifested a specific syndrome which consists of all*

the non-specifically induced changes within a biological system". He also mentions that stress can be seen as response to noxious stimuli or environment stressors, which can be described as non-specific body's response to noxious stimuli (Selye, 1956, 12).

Roy and Andrews (1999, 30) define adaption as:

" *The process and outcome whereby thinking and feeling persons, as individuals or in groups, use conscious awareness and choice to create human and environmental integration.*"

People may response to environmental stimuli to keep integrity, and everyone has his or her own purpose for life that people cannot separate from their environment. According to Roy and Andrews (1999, 81), environment is defined as:

" *All the conditions, circumstances, and influences surrounding and affecting the development and behaviour of persons or groups, with particular consideration of the mutuality of person and earth resources that includes focal, contextual, and residual stimuli.*"

The environment consists of external and internal factors that influences human beings, and those factors also can be both negative or positive.This requires people to use more energy for adjusting environmental changes. (Raile & Marriner, 2009, 343)

When we refer to health, we need to not only consider physical health, but also include mental and emotional health. The World Health Organization firstly defined "*health is a state of complete physical, mental and social health and not only absence of diseases or infirmity*" (Sze, 1988). In this definition, health is used as a synonym for health, and we can assume that health is connected to the social environment that effects emotion.

Barwais' (2011) article mentions that quality of life as health which consists of life satisfaction, many positive emotional experiences and limited negative moods, Bradshaw et al (2007,136) state that health can be understand as the balance between different factors: progression, utilization of resources and stress tolerance. Roy and Andrew (1999, 21) also consider health to be "*a state and process of being and becoming integrated and as whole person, it is a reflection of adaption, that is, the interaction of the person and the environment*". Thus, no matter adult or adolescent, if they cannot deal with stress in proper way, they may put their health in danger.

Nursing care is concerned with people's experiences of "illness" and "health". Everyone can encounter health or illness in the presence or absence of disorder. Thus, the goal for nursing is the identification of transaction patterns between stress-related factors that predict susceptibility or vulnerability to illness experiences and that predict resilience to stress and enhanced health experiences. (Ruddick, 2013)

Resilience refers to a person's ability to apply his or her own coping skills to life stress, changes and challenges (Ruddick, 2013), and these can be viewed as resources that are applied in early intervention strategies into mental problems. There is a relationship between mental health and resources (Antonovsky, 1987), such as understanding of changes, realization of current resource for coping, seeing difficulties as challenges and so on. In this perspective, the resources become coping strategies that handle stress successfully and finally enhance the person's resilience.

3.3.   Previous Research

Critical events overlap to social science and health care science. Much like social progress and economical development, modern society is a stressful place for human being. Sources of stress can be consists of, for example, the family unit, the social climate, individual pursuit, to get along with people, mechanization lifestyle. There is always an implication of long-term effect in this pressure; it is a gradual and cumulative process. In this process, if the pressure cannot be distracted, it would cause enormous sufferings, and even psychological problems. (Hill-Rice, 2000, 6-8)

Each person will find pressure at different stages of life. However, the current social trend offers increasingly concentrated pressure, and people appear to reflect much on psychological problems, which indicates a social anxiety state. We are suffering from stress. The city, as the most complex form of human settlements, introduces a variety of management pressures.

Any event which induces intensive emotional reaction and has the possibility to restrict people's capability to cope, can be defined as critical event, and people who are involved have great possibility to be traumatized. They often experience depression, anxiety, insomnia, anger burnout, or suicide (Martin, 1993). Thus, the critical incidents bring a lot of stress to experienced individuals, and occupational health psychologists have payed more attention to influence of traumatic events on people's health these years. The presence of post-traumatic stress disorder (PTSD) and attracts more experts to conduct research into effectiveness of trauma care (Martin,1993). Critical incident stress debriefing

is widely applied in coping strategies and therapeutic intervention which can be used to relief symptoms and prevent development of PTSD (Irving & Long, 2001).

Many studies have been conducted in different professions-related critical incidents stress, for instance, nurses, police and coping strategies of workplace stress and violence. Most of people have experienced critical incident stress in private life or workplace and 30% of them is fail to cope properly and finally lead to PTSD (Antai-Otong, 2001; Bell, 1995; Laws & Hawkins, 1995; Leonard & Alson, 1999; Sacks et al, 2001; Tehrani, 1998). Impact of traumatic incidents on adolescents and young people are often ignored, they are exposed to these events directly or indirectly (Lawson, 1998). Commonly traumatic events are exposed to physical or sexual abuse (Rew & Shirejian, 1993), parental spousal abuse (Ericksen & Henderson,1992), gang violence (Moloney-Harmon & Czerwinski,1994), learning from a murder (Burman & Allen-Meares, 1994). Most of young people fail to integrate traumatic events and some of them try to avoid to recall traumatic experience, disorganization, or aggression are applied as methods to protect themselves and overcome restless and fear (Hill-Rice, 2000, 7), some even cannot control their behaviors (Lawson, 1998).

Stress is easily leading to a starting of diseases, both physical and psychological aspect, such as cardiovascular disorders (Benschop et al., 1998; Dimsdale et al., 1987; Ornish et al., 1983), headaches (Davis et al., 1998; Fanciullacci et al., 1998; Holm et al., 1997; Holroyd et al., 1991). Hill-Rice (2000, 4) mentions that chronic stress experiences affect human being's health both mental and physical, and also functional capabilities, and this

point view is widely accepted. According Robson and Gray (2007, 457-466), many current researches also figure out there is a relationship between mental and physical health.

Parham (2008) stated that reducing the influence of illness and promoting the quality of life and health for individuals and communities are the significant reasons for implementation of mental health promotion. Large evidence represent that early interventions and implementation of mental health service drastically decrease the influence and incidence of mental health diseases or illness. In mental health service, a comprehensive concept and approach should be applied in mental health promotion, which should include mental, physical, spiritual and emotional demands and referring patients' own experience or values in their lives and the way they coping with mental stress (Jane-Llopis et al., 2005). Therefore, a patient-centered mental health care should be the approaches that start mental health promotion.

Solution-focused therapy (SFT) is widely applied in mental health promotion. It is a psychotherapeutic approach which is employed in mental health promotion in children and families, alcohol and drugs, mental problems within community, patients in mental illness treatments. It focuses on positive aspect instead of negative results, and this supports the people realizing their strengths, resources to form the solutions to future, and enables their ability to face with problems in lives. (Wand, 2010; McAllister,2007; Ferraz & Wellman, 2008)

From these research findings, they indicate that critical events produce stress to human being, and finally affect people's health which is due to stress threaten health. This is also

proved in the following studies:

Table 1. The previous research histories during June 2012 and January 2013.

Database	Keyword	Date	Hits	Used
EBSCO	Critical event & health	25.01.2013	27	3
	Critical incident & mental health	03.03.2013	424	9
	Nursing and mental health promotion	03.02.2013	562	13
	Finnish mental health	06.03.2013	32	4

The previous study articles are chosen on several search conditions: articles should be published 2005 to 2013, full text, references and abstract available, nursing research or academic nursing journals. Many articles are medical sciences, or relate to nursing intervention and education of mental health, or specific mental diseases' treatments are not taken into consideration. There are also many articles that do not refer to nursing care. The chosen articles mainly focus on critical events, stress and health's definitions, type and interpretations, also include researches in relationship among health, stress, and critical events. Quantitative research and SPSS analysis are applied in this study, because this is a nursing research paper, thus nursing quantitative research is the best suitable references and SPSS is the tool for data analysis in quantitative study.

4. Data Analysis and Method

This is a quantitative study applied to another study where more than 1000 participants answered questionnaire. All data was ready collected in the KLUCK 2 study and gained from research department of Novia. There is a book published in Swedish "Byggnadsrelaterad ohälsa i Kvarkenregionen - Hälsa 2" to provide information about KLUCK 2 and data reference.

After data of KLUCK 2 was collected, the data input into computer. The survey was conducted Ostrobothnia and students and teacher at school in this area was involved. The questionnaire from KLUCK 2 study was composed of 33 questions which include two open questions in the end. The questions used in the previous KLUCK 2 study are enclosed to appendix of this study. The questionnaires was geographically dispersed in Ostrobothnia, both rural and urban, large and small cities and towns among the schools. The aim of this study is to analyze one question, number 30, from the KLUCK 2 study.

This study starts after data collection by KLUCK 2 by applying Statistical Package for the Social Sciences 2.0 (SPSS Inc., Chicago,IL) to analyze one question from the data. Cross tabulation tables assist to check the relationship between each critical event and basic information of respondents, and it provides the whole picture of observational relationship between two different variables. Chi-square test is to see is there any statistically significant association exist between two variables, and it shows the observed frequencies and expected frequencies by standard measure. (Acton et al, 2009, 141-144)

The demographic data form includes age, gender and smoking status. These basic data of respondents will be presented through the mean, range and the standard deviation. However, only analyzing one question with 8 sub questions from the questionnaire in the KLUCK 2 study is enough to fulfill this study. The study result is shown of analysis of relationship between each sub-question and health, and the basic information of respondents, such as age and gender, will be taken into account while analyze the relationship.

However, there are also limitations in this analysis method. The questionnaire is composed of Yes/No questions, so it is difficult to show the relationship between critical events and health by SPSS. The percentage can be calculated, but it just provides the trends of respondents' choice in those eight questions, and cannot present the relationship directly. Another problem is the details background of KLUCK 2 and the questionnaire is designed in Swedish.The language barrier affects understanding of questions, but this problem solved with the help from teacher providing an informal translation of this question to English.

5. Study Results

The data from the interesting question was put into Statistical Package for Social Sciences (version). Descriptive statistics and Spearman's "rank correlation coefficient" are applied to analyze the sample.

In order to see the relationship between critical events and health, the study sample should be analyzed firstly. The sample is composed of 581 students and 480 teacher in one school in Ostrobothnia. The students´ answering rate was89% and teacher participation ratio was 66%. The students included 51.3% (n=298) female and 48.6% (n=283) male, and 82% (n=393) female teacher and 18% (n=87) male teacher participated in the survey.

Students' age was 15 to 20, with the average of 16.7. There was not much significant difference in age among students. teacher's age is from 20 to 65, and the average age is 45.5. The age among the teacher varies much more than student group. 70.6% (n=411) student and 90% (n=438) teacher never smoke, 12.4% (n=71) student and 4.4% (n=21) teacher are used to smoke every day. Student has higher tendency to smoke. There was 1 data missing in student group and 2 data missing in teacher group. (See Figure 2, 3)
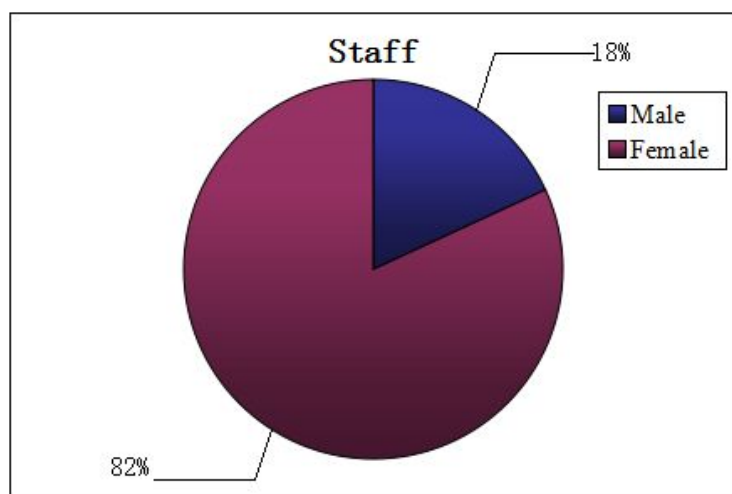

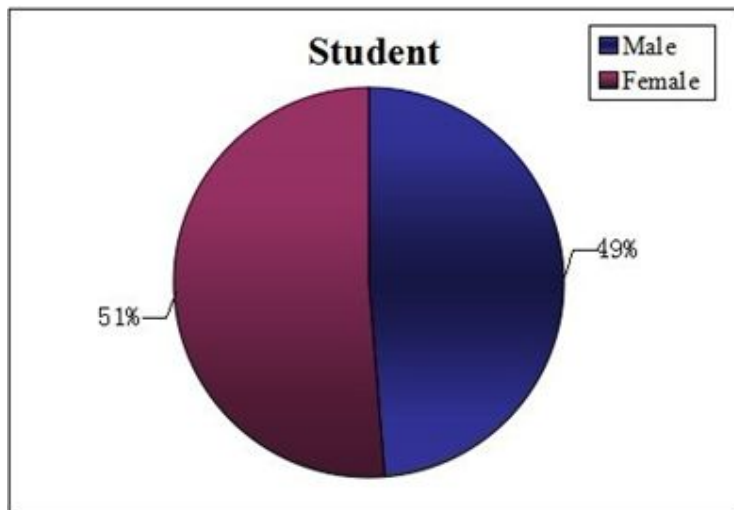*Figure 2. Demographic teacher statistics of samples in the survey.*

Figure 3. Demographic student statistics of samples in the survey.

In order to study how many students and teacher considered critical events' influencing their health and what kind of events has most significant impact, the frequency analysis is applied (Acton et al, 2009, 141-144). The statistics of students analysis is just concentrated on who had experienced those 8 critical events and teacher's questionnaire not include the last question as student group do.

Table 2. Frequency analysis statistics

Critical Events	Student		Staff	
	No(%)	Yes(%)	No(%)	Yes(%)
1. Separation or divorce in the family	59.1	40.9	31.3	68.7
2. Immediately death in family or other relatives	69.3	30.7	72.1	27.9
3 Severe illness in the family	51.9	48.1	55.3	44.7
4. Unemployment in the family	81.0	19.0	76.9	23.1
5. Change of residence	71.7	28.3	78.4	21.6
6.Moving to another place (town, region, village..) or changing apartment.	57.9	42.1	78.6	21.4
7. Family member number increasing in family	88.2	11.8	53.8	46.2
8.Your parents have formed new family (become partner or married new partner with or without children)	61.8	38.2	-	-

No: Having no influence on health.   Yes: Having influence on health.

In student group, 88.2% student showed no influence from "family member number increasing in the family", 81% student had no affection of "unemployment in the family"; 40.9% students considered "moving to another place" influencing the health and 48.1% thought "severe illness in the family" had great impact on their health too. 78.6% teacher felt "moving to another place" no influence to health, and "change of residence" and "unemployment in the family" all had no impact on health respectively in 78.4% and 76.9% teacher; "separation or divorce in the family" influencing health agreed by 68.7% teacher, 46.2% also considered "family member number increasing in family" bringing some problems in health and "severe illness in the family" was also really high concerned

with health, 44.7% teacher did agree with it. (See Table 2) It is easy to conclude that different critical events affect different group's health.
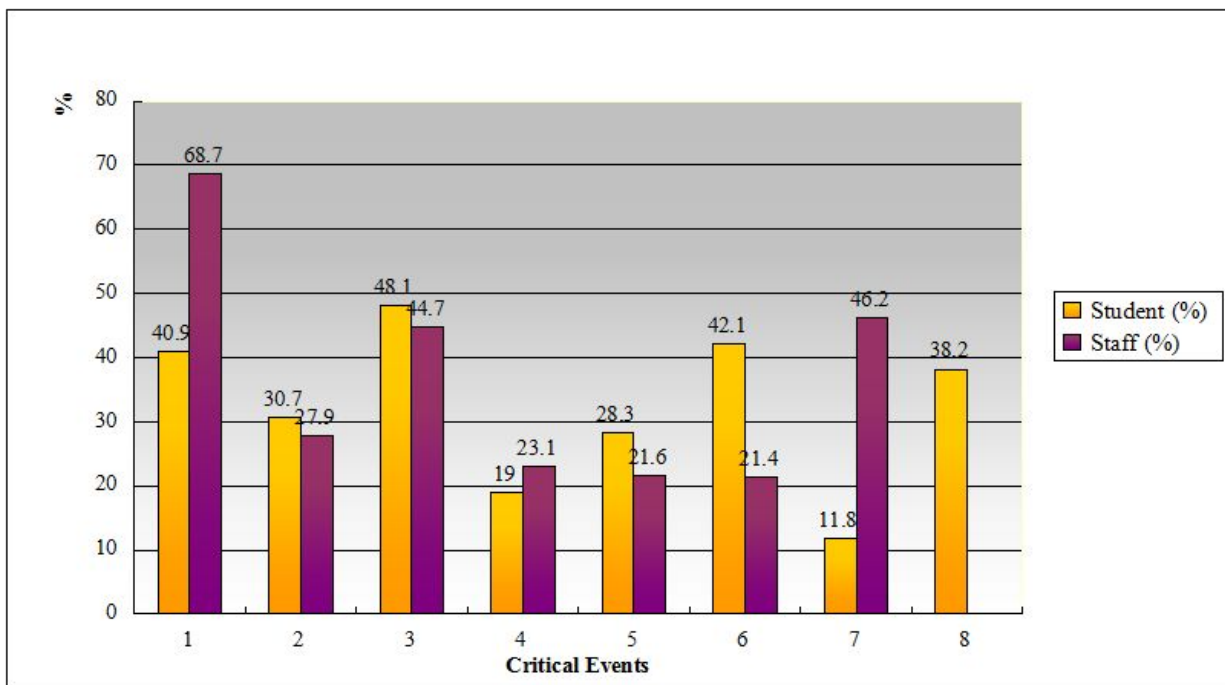

Figure 4. Relationship between critical events and students' and teacher's health

Figure 4 illustrates that "separation or divorce in the family" and "severe illness in the family" are the two critical events which affect both students' and teacher's health most. teacher's health is affected mostly by "separation or divorce in the family", and "severe illness in the family" and "members increasing in family" influence the health of half-teacher who participated in the survey; "severe illness in the family" has greatest impact on most students' health, and "separation or divorce in the family", "moving to a new place or changing apartment" and "parents formed a new family" also influence health of students a lot, and nearly one third of both students' and teacher's health are affected by "immediately death in the family or other relatives".

6. Ethical Consideration

In quantitative research, validity and reliability are significant to approve and validate the result of research. Validity is "*the degree to which the evidence supports that the interpretations of the data are correct and the manner in which interpretations used are appropriate*" (Moskal et al, 2002). When the research result from the study is truthful and believable, the validity can be seen as achieved. When the answers in other researches for the questions that researchers set to exanimate the measurements are precise or not, which affects the validity (Joppe, 2000, 1).

When the research results are shown in consistent after being test many times in the experiments with the same methods, then the instrument can be seen reliable (Joppe, 2000). In quantitative research, according to Kirk and Miller (1986, 41-42), there are three kinds of reliability, which are generating same results with same measurement methods, stableness of a measurement refer to time and comparability of measurements in a certain period. Reliability is also the conformity with the results that are still the same through the test-retest in different time (Charles, 1995). He defined this instrument is a stable instrument, and when results are repeatable, the stability and reliability must be both in very high level.

Creswell (2003) mentions that validity threats will affect the accurateness of data and result, he also states that obtain validity in quantitative research through experiment review, data triangulation, participant feedback, regression analysis and statistical analysis.

The data collection was intended to go under quantitative analyze. However, due to the questions' design in the questionnaire, there is a limitation in the data analysis by SPSS. Thus, qualitative research method also is applied in analysis part to provide more clear image of the relationship between critical events and health.

7. Discussion

In this study, it mainly focuses on the ineffectively adaption to critical events. To understand the relationship between critical events and health, Roy adaption model is applied to analyze the result. According to her model, when the environmental changes and produces stressors to the person, he or she may react effectively or ineffectively. Ineffective reactions to stressors, which are both environment and the person him- or herself, lead to interference of the integrity of the person; on the other hand, when the person conquers the stressor of environmental changes, adaption appears (Andrews & Roy, 1986; Roy,1970, 1971, 1980). Ineffective response to stressors lead to failing of adaption of the environmental changes and critical events, wich finally affect the health.

According to the data analysis of SPSS, " divorce or separation in the family" and "severe illness in the family members" are the critical events, which impact both students' and teacher's health most. Thus, "divorce or separation in the family" is chosen as an example here to illustrate how critical events affect the health under Roy's adaption model.

First of all, there are four steps in human adaptive system when environmental changes occur in life, stimuli, coping process, effectors (which including physiological function,

self-concept, role function, and interdependence) and behaviors caused by adaption or denial (Roy,1984). Since the respondents considered divorce having influence on their health, the ineffective adaption response is understandable in this case; divorce as a stimuli to their life, physiological function system is affected negatively and is failing to achieve basic needs, for instance, rest, nutrition and activity. From this point view, lacking of food and rest already do harm to physical health; the person starts to lose self-esteem in his or hers self-concept identity system, which leads to depression; in role function system, finally it affects how person treats another persons, that influences interdependence; interdependence is mainly concentrated on how the person is capable to show love, respect and value (Roy & Andrews, 1999); in this situation, the person isolates him- or herself from society and social support system. Therefore, ineffective responses to stimuli can lead to both physical and psychological health.

The study result proved the previous assumptions, that critical events affect health. Most of critical events are unpredictable health/illness-related or life-related stressors. The Roy`s adaption model also provides very clear picture that how stimuli affect person in negative way, and finally causes physical and mental problems to the person. Many other researchers' works mentioned critical events are linked to stress, and stressors, environmental changes and the self affect person's health.

In this study, quantitative and qualitative research methods are adapted to analyze the data. Results shows students and teachers are affected by critical events in different scale. Thus, it is difficult to state which group's health is more easily affected by critical events. "Divorce or separation in the family", "severe illness in the family member", "family

member number increasing in family" and "moving to another place" are the critical events that have significant impact on health. These events can be sorted into life-related and health-related critical incidents. Research questions are answered through the combination of two research methods.

All kind of critical events have different influence on students and teachers lives. Different critical events affect equally on students and teachers. The values on both groups are varies due to the age difference, "separation or divorce in family" does not affect students as much as teachers. And students average age is 16.7 and teachers 45.5, for the teachers, the divorce can be very personal and that is the reason affecting health in mental and physical level. Moving to another place nearly only affect students, this could be because students are more sensitive to environmental changes, for example, new school, and new friends. The study aim is fulfilled, and findings shows that due to different ages' personal response to stimuli, critical events impact persons' health in different scales.

The study result suggests that health influence on different critical events varies from students to teachers. Over half of teacher participants considers "separation or divorce in the family" affecting their health, which becomes most remarkably critical event having impact on teacher's health, and "severe illness in the family" is the top critical event influences students' health.

According to Roy adaptive model, there are three types of stimuli in adaption level. These eight critical events are easily sorted into three classes of stimuli she mentioned. These three stimuli present one person's own standard of stimuli range that can have ordinary

adaptive responses and these are foundations in the human adaptive systems. The classification is presented on Table 3.

Table 3. Classification of critical events in study

Stimuli Classification	Critical Events
Focal Stimuli	Separation or divorce in the family
	Unemployment in the family
	Family member number increasing in family
Contextual Stimuli	Change of residence
	Moving to another place or changing apartment
	Your parents have formed new family
Residual Stimuli	Immediately death in family or other relatives
	Severe illness in the family

The interrelationship between physical and mental health gains highly recognition all over the world, and mental health is same important as physical health. Nurses' work is to do more efforts to promote patients' health. However, when refer to mental health promotion, large studies show that prevention and early interventions for mental health are lacking in nursing care, because the healthcare givers are fail to have comprehensive understanding of mental health promotion (Wand, 2011). Mental health promotion should have a wide range of activities which are aiming for providing mental health promotion for individuals, families and communities (Ruddick, 2013). Department of Health (2011) in London

asserted that mental health is considered as human right and absence of mental health means no health at all.

Thus, from comprehensive mental health perspective, mental health promotion is designed for whole populations, since everyone has demand for mental health no matter they have mental illness or not. Moreover, mental health promotion must be specified to every different group, such as young people, children, female, male, who have high risk in mental problems and even who have recovered after mental problems' treatments (Barry & Jenkins, 2007; Sturgeon, 2007), because each group classification has its own characters.

The environmental conditions that people live in will have impact on health (Putnam, 2000). This points out that people who are in different social levels share their values and sense within the community and relationship in trust and social networks are entire meaning to mental health promotion. Barry (2009) asserted that unemployment, lower education and income, bad physical health condition, and critical life events are connected to mental problems. This means people need to be resilient when they encounter adverse circumstances.

Nurses have most significantly impact to provide mental health, because they are the largest group in health professionals and have education and opportunities to access to different group easily. Nurses can have more interactions with patients, which provides the chance to make influence. Mental health promotion needs patients and nurses establish large amount of natural communications and trusting relationship. Thus, all these requires nurses play a key role in providing mental health promotion and illness prevention services

to all different groups among the whole population; mental health promotion also demands nurses update their knowledge and skills that support patients to acknowledge their resource and resilience. (Ruddick, 2008; Whitehead, 2009) This indicates that mental health promotion is an approach that nurse-led and patient centered.

However, the barrier to provide effective mental health promotion services for nurses is incomprehensive understanding in health promotions and how to apply those skills and knowledge into promotion practice; moreover, plenty of nurses do not realize the relationship between mental health and physical health. Many studies show that many healthcare givers are lacking of training in physical care while they provide mental care, and physical assessment of mental patients is insufficient, and monitor of physical conditions and providing health education is far away from satisfaction; (WFMH, 2004; Whitehead, 2009) people who have mental illness or problems always is arranged to be alone or isolated from rest of the population (Herman, 2001).

The solution –focused therapy (SFT) is applied to mental health promotion practice, education, training and research, which provides guidance for nurses towards mental health promotion work and aims for establishing trust, promoting patients' orientation and control, improving strengths , emphasizing the pragmatics and setting care goals.(Wand, 2011). As a nursing student, it is necessary to have understanding of how the personal health is affected by social, cultural, political, and economic status in the society they live in (Whitehead, 2009).

Comparing with results from previous studies, this study confirms the relationship between critical events and health, and mental health and physical health cannot be divided while provide healthcare promotion service, because they affect each other.

However, there are limitations in this study. The questions designed in the questionnaire place the study result a little bit lower reliability. The respondents may be want to hide their real answers for those questions by providing opposite choice, and the environment of implementation questionnaire and the mood of participants at that moments can all be factors that influence the data reliability. Analysis of the study is restricted by the type of questions that designed in the questionnaire, which is fail to present the relationship between critical events and health in a directly way through the application of SPSS, but it is still easily to see the trends of the data flow. SPSS was not the best mean for analysis the relationship between critical events and in this study

This study shows the general relationship between critical events and health. For further study, the relationship between critical events and age, critical events and gender, critical events and smoking status are all interesting and open to be studied, since there are so limited researches in these filed.

8. Summary

This is a study under the KLUCK 2 Project. The purpose of project was to enhance the knowledge on indoor air issues in Ostrobothnia and Västerbotten, and it was composed of

8 different projects and they are all related to issue of indoor air quality and health improvement in buildings.

This is a quantitative and qualitative mixed study. The aim of this study is to find relationship between critical events and health of teachers and students from 44 schools in Ostrobothnia. Roy adaption model is employed in this study, and her theory provides the foundation of three classifications of stimuli in eight critical events in the questionnaire.

KLUCK 2 project did the data collection by questionnaire and then input all the data into computer. From this study, Statistical Package for the Social Sciences 2.0 is applied into data analysis process. The questionnaire is designed by Yes/No question, which is not suitable for analyze the relationship by SPSS, it is impossible to see the relationship between critical events and health directly in this way, so qualitative research method is also considered in the study.

The study result presents that teachers' and students' health are equally affected by critical events; over half of teacher participants considers "separation or divorce in the family" affecting their health, which becomes most remarkably critical event having impact on teacher's health, and "severe illness in the family" is the top critical event influences students' health. Comparing with the past researches, this study confirms the relationship between critical events and health, and mental health and physical health cannot be divided while provide healthcare promotion service.

9. Conclusion

Critical events are unpredictable incidents in our life, some of them can lead positive effect to people's life but some also bring negative impact on health. This study presents there is relationship between critical events and health in teacher and students in the Ostrobothnia region in Finland. The research questions are answered and quantitative research and qualitative research are both applied in the study.

In the final part, the study also discusses about the mental health promotion, because there is highly cognition of interrelationship between stress and adverse events, stress and mental health illness. Thus, mental health promotion is a necessary part need be mentioned in this study. As a nursing student, it is vital to gain more health promotion education that can provide the chance to understand how social, economic, political and cultural factors have impact on health, and this would help students to apply a holistic health promotion concept into practice.

This study lasts almost one year, and we gain a lot of supports from supervisor and other teachers. It is impossible to finish this study without their helps and supports. Through this study, we also learn how to find information and resources with all kinds of means and implement the theory of research methodology into practice, and make improvements under the guidance of supervisor.

We have holistic picture about mental health promotion service, and nurse's role in taking care of patients. Updating knowledge and skills are always required in nursing career,

which can guide nurses' work more effectively and efficiently and bring high satisfaction care to the patients.

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APPENDICE

30. Har någon av följande omvälvande händelser inträffat i Ditt liv under det
senaste året?   *Ja Nej*   *Ja Nej*

30.1 Separation eller skilsmässa i familjen   ☐ ☐   ☐ ☐

30.2 Dödsfall i närmaste familjen eller annan närstående ☐ ☐   ☐ ☐

30.3 Svår sjukdom i familjen   ☐ ☐   ☐ ☐

30.4 Arbetslöshet i familjen   ☐ ☐   ☐ ☐

30.5 Byte av bostad   ☐ ☐   ☐ ☐

30.6 Flytt till/från annan ort   ☐ ☐   ☐ ☐

30.7 Tillökning i familjen   ☐ ☐   ☐ ☐

30.8 Dina föräldrar har bildat nyfamilj (blivit sambo eller

ingått äktenskap med ny partner med eller utan barn) ☐ ☐   ☐ ☐