

METHODOLOGY AND THEORETICAL FRAMEWORK OF HEALTH BEHAVIOR RESEARCH – A PRELUDE TO HEALTH BEHAVIOR RESEARCH AMONG THE ELDERLY IN THE CONTEXT OF COVID-19

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Abstract: Methodology and theory of research are considered the guiding principles for any scientific study. Choosing an appropriate research method will help us objectively, scientifically, theoretically, and practically address the research problem. This article presents research perspectives on research methodology, theory, and methods of health behavior research from studies in the United States and Europe. The application of theories at the individual or interpersonal level in human health behavior research is elucidated in the following analyses. The suitability of quantitative or qualitative research methods in the context of significant social changes such as the pandemic in recent years is discussed in the opening section for studying the health behavior of the elderly in the context of Covid-19 in Hanoi, Vietnam.

Keywords: research methodology, research theory, health behavior, elderly, Covid-19.

I. INTRODUCTION

Scientific research on human beings plays a crucial role in expanding knowledge, driving innovation, and addressing the challenges that individuals and societies face. By adhering to scientific principles in theoretical and practical research, studies on human beings consistently contribute valuable discoveries not only to science but also to the socio-economic development of nations. Among these, health stands out as one of the most fundamental human rights, playing a vital role in the quality of a population and a nation's workforce. Therefore, health is regarded as an asset of both individuals and society, surpassing any material wealth. Different fields of science, such as medicine, sociology, anthropology, or economics, have their own perspectives on health based on their unique research approaches. In sociology particularly, the primary determinant and influencer of human health are their behaviors. Studying health behaviors from a sociological perspective not only considers the social context but also emphasizes the application of theoretical frameworks and research methodologies throughout the research process. The application of theories at the individual or interpersonal level in

studying human health behaviors is elucidated in the following analysis. The suitability of employing quantitative or qualitative research methods in the context of significant social changes such as the recent pandemic will be discussed in the section providing insights for studying the health behaviors of the elderly in the context of Covid-19. This article is part of the research project funded by the Ministry titled "Health behaviors of the elderly in the context of Covid-19: A case study in Hanoi," led by Dr. Nguyen Nhu Trang.

II. METHODOLOGY AND RESEARCH THEORY

Methodology serves as the fundamental framework guiding a specific research endeavor. It constitutes a system of scientific perspectives that underpin research practices in reality. The study of health behavior, being inherently complex, relies on methodologies as guiding principles to achieve fundamental objectives and devise solutions to societal issues associated with health behaviors. Since the 1990s, numerous research works have elucidated and explored the effective application of various health behavior theories across different levels in practical research. For each level, theories focus on the application and analysis of the diverse social factors influencing health behaviors. While individual theories primarily explain from the subjective aspect of human beings, inter-personal theories focus on social relationships. At a broader level, community theories emphasize social groups and organizations. In the sociological approach, health behaviors are often explained through individual and inter-personal theories.

At the individual level, classic theories such as the Health Belief Model, Precaution Adoption Process Model, Stages of Change/Transtheoretical Model, or the Planned Behaviors theory have been widely used from 1986 to 2005, especially the Health Belief Model, Planned Behaviors, and Stages of Change model (Karen et al., 2008). The Health Belief Model explains health behavior through six main concepts: Perceived susceptibility, Perceived severity, Perceived benefits of action, Perceived barriers to action, Cues to action, and Self-efficacy (Robert Croyle et al., 2005). These factors, when fluctuating, influence individual health behavior towards beneficial or detrimental directions. Additionally, the Stages of Change theory focuses on the process of behavior change through five stages: Precontemplation, Contemplation, Preparation, Action, and Maintenance. Importantly, this process is not a "straight line" as each behavior, case, or individual may progress through the stages in a non-linear fashion (Karen et al., 2008). Thus, this theoretical framework is suitable for explaining behaviors or seeking intervention solutions by understanding the behavior change process (R.T. Croyle et al., 2005).

At the inter-personal level, the Social Cognitive Theory has been widely used since the 1980s (Karen et al., 2008). It emphasizes the social interaction between individuals, the environment, and behavior to examine their mutual influence, primarily through concepts like Observational Learning. This is a key differentiator from individual theories and a crucial aspect in health behavior research, as observing behaviors and especially their consequences from family, friends, etc., helps individuals identify and understand the nature of behavior (Robert Croyle et al., 2005). Furthermore, observation extends beyond individual social relationships to include societal structures related to the reinforcement or punishment of behaviors. Here, it mainly involves policies and legal sanctions concerning behaviors harmful to health, such as the sale of tobacco or stimulants. Additionally, Self-efficacy also appears in the Social Cognitive Theory, as individuals' belief in their capability to perform a behavior successfully motivates them, even in the face of obstacles, during behavior establishment (Robert Croyle et al., 2005). This is also an important factor in the Social Cognitive Theory. In reality, studies have shown correlations between Self-efficacy and the formation and maintenance of health behaviors (Aleksandra Luszczynska and Ralf Schwarzer, 2020). However, it is noteworthy that this concept can be misunderstood as a belief that a behavior is easy or difficult to perform, leading to inaccurate measurements (Aleksandra Luszczynska and Ralf Schwarzer, 2020). This contradicts the original nature of the Social Cognitive Theory, as Self-efficacy should stem from confidence in one's ability to perform a behavior rather than from the inherent difficulty or ease of that behavior. Lastly, to maintain beneficial health behaviors in the long term, Self-regulation is necessary. Karen explained in her research that a behavior is not executed solely by "willpower" but by how individuals maintain their motivation (Karen et al., 2008). To achieve this, Bandura (1977), the pioneer of the Social Cognitive Theory, proposed six methods: observing one's own health during behavior execution to observe its effectiveness; setting goals for behavior execution; self-assessment of the quality of behavior execution; self-reward for good performance; self-motivation before and during behavior execution. Finally, seeking resources that individuals truly trust to encourage themselves through motivation and encouragement. Explaining health behavior through the Social Cognitive Theory enables us to access the external factors influencing individuals. This is crucial as individuals always live and interact within groups, organizations, and societies. It forms the foundational basis, the social environment that drives behavior.

Overall, prevalent health behavior theories throughout history have aimed at understanding the progression of health behaviors. In other words, each theory, despite its different approach, ultimately seeks to explain the transformation of behavior, why it occurs, why it fluctuates, and why it disappears. Choosing an appropriate theoretical framework helps researchers fully identify and comprehend the factors influencing behavior, thus developing interventions tailored to each behavior and target group (Robert Croyle et al., 2005).

However, a study in 2008 by Painter et al. indicated that the utilization of theories in practical research was not fully comprehensive. Health behavior studies during this period had a lower rate of theory usage compared to previous studies. Moreover, up to 68.1% of new studies only stopped at designing the study from the theoretical framework without implementing higher levels, such as: applying the theory to address specific issues; testing the theory by creating intervention methods based on that theory and assessing their effectiveness in behavior change; or developing supplements to that theory or creating a completely new theory (Painter, J. E., Borba, C. P., Hynes, M., Mays, D., & Glanz, K. 2008). This leads to limitations in accessing information and problem exploration methods, making it difficult for studies to create successful intervention solutions for behaviors harmful to health. Nevertheless, this is only a general research result in the United States, so the trend of theory usage may vary in different countries with different socio-economic and cultural contexts.

Additionally, the quality of applying theory in practical research can be enhanced by integrating and comparing theories to explain the same health behavior. Unlike applying a single theory, studies built on two theories will integrate theory with real-world data better to change health behavior more effectively (Nigg, C. R. et al., 2002). Comparing two theories helps approach multidimensional factors leading to health behavior, thus easily understanding the causes of successful or unsuccessful interventions (Nigg, C. R. et al., 2002). Human behavior is often complex, so a single theoretical framework may struggle to fully explain it, leading to less effective solutions than expected. Studies like this can enhance researchers' knowledge and understanding of the process by which humans change/maintain behavior and how to create favorable conditions for this process to develop. A study by Jay A. Richards and Martin P. Johnson in 2014 combined the Planned Behaviors theory and the Extended Parallel Process Model to explain individual exercise intentions. The results showed that while the Planned Behaviors model is useful for analyzing past and present exercise intentions, variables added from the second theory explained more about the fluctuation of future exercise intentions.

Thus, all the trends in analyzing and researching theoretical frameworks of health behavior mentioned above contribute to strengthening the methodological foundation for future studies in this field. It is essential to focus on the transformation process of health behavior and explain it from various perspectives. Studies need to select appropriate theoretical frameworks, with clear research purposes to exploit them more thoroughly. However, this also somewhat depends on the research methodology because not every scientific study can fully utilize a theoretical framework in just one study.

III. RESEARCH METHODOLOGY

Studies on health behavior are typically designed to understand the one-way impact of social factors on health behavior, but very few studies focus on the bidirectional interaction between these variables. Most research topics progress from a pilot study to a randomized controlled trial to assess the effectiveness of interventions from the initial study, and finally to a randomized controlled trial with a specific target population. However, health behaviors are often complex and dynamic, so they cannot be fully understood through a single study or approached from a singular perspective, limiting researchers' understanding of these behaviors.

Therefore, interdisciplinary knowledge as well as multidimensional and in-depth research systems are crucial, as highlighted by author John D. Clapp at the annual conference of the American Academy of Health Behavior (2018) under the term Systems Science, which has been developed since 1980. To thoroughly investigate health behavior, four steps are necessary: theoretical framework research, experimental research, field research, and retesting the results of the initial study or conducting a second experimental study. This method helps analyze behavior from multiple perspectives through a process of research and repeated testing to find comprehensive intervention solutions addressing most influencing factors on behavior. It also emphasizes the "time" aspect of health behavior research; longitudinal qualitative methods do not objectively explain health behavior but explore individuals' personal experiences (subjective perspectives) as they engage in certain behaviors at different points in their lives. This helps identify the common understanding of why and how behaviors change over time. This method is not used to measure the speed or pace of change like other quantitative studies.

The most important factor in quantitative research is the design of surveys and the effective use of tools and scales. A quality survey will accurately measure the progression of behavior, explain how behavior is influenced by social factors, and what the outcomes are. A relatively common approach is to design surveys based on Classical Test Theory, using aggregated scores from the entire survey when measuring a variable across multiple indicators to obtain generalized data. This theory assumes that all individuals surveyed always have the same probability of answering similarly, regardless of their characteristics. However, in reality, when conducting surveys, external factors (interviewers, question framing) as well as the individual's capacity, knowledge, and perception will change the probability of selecting the most appropriate answer for them. Although health behavior studies require high accuracy in capturing each individual's behavior, the aforementioned method has certain drawbacks. This can be overcome by designing surveys based on the Items Responding Models theory, which focuses on each characteristic of the question rather than just the overall results of the survey. A study in 2006 by author Wilson and colleagues compared the differences between this survey design method across the same Self-efficacy scale. The results showed that while the reliability of the two methods did not differ significantly, the indicators in the survey designed using the IRM method explained more about self-management abilities in physical exercise activities.

Furthermore, numerous studies have analyzed the effectiveness of health behavior measures to develop stable, widely applicable tools yielding accurate results. Health behavior assessment tools are typically categorized according to several common behaviors including diet, exercise, sleep, and substance use such as alcohol and tobacco consumption. However, with societal and scientific advancements, new measures are gradually being formulated through novel and distinct approaches. A recent study by authors Tooley, Fava, and Borrelli examined the reliability and construct validity of the Relationship Antecedents of Smoking Scale (RAS) with 21 indicators falling into two groups: positive (satisfaction when smoking together) and negative (perception of health risks) (Tooley, Erin M.; Fava, Joseph L.; and Borrelli, Belinda, 2023). This scale was utilized to gauge smoking behavior among participant dyads, whether they smoked together or only one individual smoked. Previous research has indicated high levels of concordance in health behaviors among dyads, particularly in smoking. However, existing measures often only consider the role of partners in aiding cessation. Analysis results reveal that the RAS scale is robust, exhibiting reliability (Cronbach's Alpha = 0.96) and initial insight into how an individual's smoking behavior is influenced by their partner's behavior.

Thus, health behavior studies employ systematic methodologies and diverse research approaches, but they require more rigorous utilization to devise effective solutions for behavior modification and predict potential health risks stemming from health behaviors. Health behavior studies within specific social contexts, or during times of significant societal upheaval such as pandemics, wars, or macro-level changes related to economic-political-social dynamics, necessitate researchers to employ appropriate study designs that blend theory, experimental research, or application of specific theoretical perspectives in empirical studies. The conceptual framework, or in other words, the structure of the components constituting health behavior, also needs to align with the social context in which the research is conducted.

IV. EXPLORING THE HEALTH BEHAVIOR OF THE ELDERLY IN THE CONTEXT OF COVID – 19 PANDEMIC

The Covid-19 pandemic has directly impacted the health of the global population, with the elderly considered a particularly vulnerable group due to their susceptibility to health issues and age-related vulnerabilities. We propose a cross-sectional study to investigate the health behaviors of the elderly in the context of Covid-19. Our research approach is grounded in the Health Belief Model and Social Cognitive Theory, as outlined above. Both theories have been extensively utilized in health and health behavior studies in the United States and Europe for decades.

The Health Belief Model elucidates health behavior primarily based on individuals' perceptions, feelings, and knowledge regarding their own health status. Its core tenet posits that individuals are likely to engage in health behaviors (often preventive behaviors) or seek higher levels of health care if they have a full perception of six factors (Robert Croyle et al., 2005). These specific factors include: (1) Perceived susceptibility (belief that individuals can contract an illness/health issue at any time); (2) Perceived severity (belief that illness/health issues can lead to adverse consequences); (3) Perceived benefits of action (belief that engaging in beneficial health behaviors reduces the likelihood of illness/health issues); (4) Perceived barriers to action (belief that the disadvantages of engaging in a behavior do not outweigh its benefits); (5) Cues to action (individuals' ability to engage in behavior when prompted by certain factors); (6) Self-efficacy (confidence in one's ability to successfully engage in health behaviors). Except for cues to action, all other factors fluctuate and are influenced by individuals' unique demographic characteristics such as age, gender, education level, etc. Thus, along with cues to action, these "beliefs" directly impact the adoption of health behaviors either positively or negatively.

In the context of Covid-19, which demonstrates heightened concerns across the population, the elderly are particularly affected, often exhibiting higher levels of health-related anxiety compared to other age groups.

A sociological approach to studying health behavior cannot overlook the role of Social Cognitive Theory, which identifies social factors influencing behavior and behavior change. The core structure of Social Cognitive Theory relates to interventions aimed at behavior change, including learning through observation, reinforcement, and self-regulation. These are mechanisms through which individuals consciously adjust or change health behaviors to achieve optimal health outcomes for themselves, their communities, and society. Applying Social Cognitive Theory to the study of health behavior allows for analysis, interpretation, and insights into the behavior of the elderly within the specific social context of Covid-19.

Health behavior is a product of the interaction between three factors: individual (cognitive, affective, biological), environmental (natural, social), and behavioral. These factors interplay closely, guiding individuals to adopt specific health behaviors: those conducive to health promotion and those detrimental to health. The study designs a questionnaire to gather information on the health behaviors of the elderly within the context of Covid-19, not only during but also before and after the pandemic. This enables comparisons to identify changes in health behaviors within a social context profoundly altered by Covid-19. Consequently, the study design does not rely solely on conventional notions of beneficial and detrimental health behaviors but builds upon the specific social context to construct components of health behavior: preventive health behavior, therapeutic health behavior, and health behavior aimed at maintaining and enhancing post-Covid-19 health.

The quantitative research design is defined by a set of pre-formulated questions. The structure of the quantitative questionnaire is based on the conceptual framework of health behavior research. The research design collects information on the health behaviors of the elderly within the context of Covid-19 through a quantitative questionnaire divided into six sections. In addition to personal information, health status, and general health behaviors, the questionnaire layout emphasizes three main content areas, which constitute the health behaviors of the elderly within the context of Covid-19: Preventive health behavior, Therapeutic health behavior, and Health behavior aimed at maintaining and enhancing post-Covid-19 health. These are also the primary focus areas of the study.

Part A. Personal Information

Part B. Health during the Covid-19 Period

Part C. Health Behavior during the Covid-19 Period

Part D. Preventive Health Behavior

Part E. Curative Health Behavior

Part F. Health Behavior for Maintaining and Enhancing Post-Covid-19 Health

Health behavior of the elderly comprises fundamental actions undertaken by the elderly in their lives, directly or indirectly impacting their health. Specific health behaviors of the elderly in the context of Covid-19 explored in the research include: nutritional activities (eating behavior), physical activities (exercise behavior), sleep and stimulant use behavior (alcohol consumption and smoking), and sexual behavior. For each behavior, the research employs questions to measure the level of awareness regarding the importance and interaction of the behavior. Additionally, Covid-19 is a social factor creating a context that promotes health behaviors, i.e., behaviors aimed at protecting health and preventing the spread of Covid-19. Specific health behaviors to prevent the spread of Covid-19, usual curative health behaviors, and health behaviors during Covid-19 illness, as well as post-Covid health behaviors aimed at maintaining and improving health, are sequentially addressed in accordance with the respective research subjects.

Moreover, qualitative research design always accompanies quantitative research. The most crucial point of qualitative research is that it allows understanding the significance of social phenomena experienced by individuals in the social context in which they live. Thus, we can identify common patterns in behavior, perceptions of a specific group, enabling understanding and explanation of factors influencing health behavior or related to the health behavior they perform. For the elderly, the need to share and express their health is often greater than other social groups. Therefore, a qualitative research design is both necessary and appropriate for the research subjects, the elderly population in society. In addition to focusing on exploring information from the elderly themselves, the research also delves into information from other social groups such as community leaders, healthcare workers, or health policy experts to understand more deeply the social context and changes in the behavior of the research subjects.

Generally, human behavior, including that of the elderly, as well as individual interpretations of their behavior in certain circumstances, are influenced by the social context. This is the focal point of qualitative research. In addition to factors from the social context, the health behavior of the elderly is also influenced by their own beliefs. If they believe in something, they will focus their health behavior towards the belief they expect. If the elderly believe vaccines can prevent or stop Covid-19, they are more likely to choose vaccination to prevent the spread of Covid-19.

Research design, whether quantitative or qualitative, needs to closely adhere to research methodology and theory. In this case, we apply classic health belief model theory and social cognitive theory as the foundational basis for the research, providing explanations for the health behavior of the elderly in a context of significant social change such as Covid-19. Not only limited to applying theory in research, but the topic also expects to identify gaps between theory and practice, moreover, to provide constructive criticisms to elevate the research theories on behavior and health behavior. The research results will be presented in subsequent publications.

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