

**PRIMARY PREVENTION OF PHYSICAL DISEASES  
THROUGH MUSIC-BASED HEALTH COMMUNICATION:  
TOWARDS WIDER UTILIZATION OF MUSIC - AN INTE-  
GRATIVE REVIEW**

Hannele Partanen  
Master's thesis  
Musicology  
Department of Music, Art and  
Culture Studies  
University of Jyväskylä  
Spring 2024

# UNIVERSITY OF JYVÄSKYLÄ

Faculty Humanities and Social Sciences	Department Department of Music, Art and Culture studies
Author Hannele Partanen	
Primary Prevention of Physical Diseases through Music-Based Health Communication: Towards Wider Utilization of Music – An Integrative Review	
Subject Musicology	Level Master's thesis
Month and year June 2024	Number of pages 59 + 18
<p><b>Abstract</b></p> <p>Health is an important value and one creator of wellbeing for both the individual and society. The objective of this master's thesis was to study what kind of roles music and musical emotions have in the primary preventive health promotion of physical health and wellbeing. Although previous studies have found that musical health communication can be an effective method of health promotion, the potential of using music to combat the manifestation of physical diseases is still poorly recognized.</p> <p>An integrative review was conducted. An electronic databases search was conducted for the years from 2008 to 2024. Data was collected from the Music Periodicals Database (ProQuest), Scopus, PsycINFO, PubMed (Medline), and FINNA – databases in two separate searches (February 2024 and April 2024). The data was supplemented by a manual search. The search terms and strategy were formed based on the concept analysis and test searches. The search was carried out systematically based on pretermitted inclusion and exclusion criteria. The quality of the included studies was evaluated.</p> <p>24 studies of the 779 search results met the inclusion criteria. The results of the study show that music is widely and versatilely used in the primary prevention of physical diseases. However, there is still little research information on the topic and the Nordic research is missing. Results also suggest that many different emotions arise and are present in music-based health communication. However, little is still known about how emotions work in these interventions. This study also identified several learning points from the world that can be utilized when planning, implementing, and evaluating a music-based intervention in, for example, the Nordic countries.</p> <p>In conclusion, findings support that music is a valuable resource in the primary prevention of physical diseases. When music is used in health communication intervention, music should be considered at every stage of the intervention. Numerous research targets are emerging from the phenomenon, and it is important to bring the research into the Nordic context as well. This study also showed that in musicology, the concept of primary prevention fits well to describe a situation where a disease is prevented before it occurs. The results of this study can be used when planning different methods to promote the health of the population.</p>	
Keywords: promoting wellbeing, music, primary prevention, health communication, health education, musical emotions	
Depository University of Jyväskylä	
Additional information	

# JYVÄSKYLÄN YLIOPISTO

Tiedekunta Humanistis-yhteiskuntatieteellinen	Laitos Musiikin, taiteen ja kulttuurintutkimuksen laitos
Tekijä Hannele Partanen	
Musiikin käyttäminen fyysisiä sairauksia ehkäisevässä primaaripreventiivisessä terveysviestinnässä: Kohti laajempaa musiikin hyödyntämistä - Integratiivinen kirjallisuuskatsaus	
Oppiaine Musiikkitiede	Työn tyyppi Maisterintutkielma
Aika Kesäkuu 2024	Sivumäärä 59 + 18
<p><b>Tiivistelmä</b></p> <p>Terveys on tärkeä arvo ja hyvinvointia luova tekijä niin yksilölle kuin yhteiskunnalle. Tämän maisterintutkielman päämääränä oli selvittää aikaisempaan tutkimustietoon pohjautuen millaisia rooleja musiikilla ja musiikkiin liittyvillä tunteilla on primaaripreventiivisessä fyysisestä terveyttä ja hyvinvointia edistävässä terveysviestinnässä. Vaikka aikaisemmat tutkimukset ovat havainneet musiikillisen terveysviestinnän voivan olla vaikuttava terveyden edistämisen menetelmä, musiikin käyttämisen luomat mahdollisuudet torjumaan fyysisten sairauksien ilmenemistä tunnustetaan vielä heikosti.</p> <p>Tutkimus toteutettiin tekemällä integratiivinen kirjallisuuskatsaus. Elektroninen tietokantahaku toteutettiin vuosilta 2008–2024. Aineisto kerättiin käyttämällä Music Periodicals Database (ProQuest), Scopus, PsycINFO, Pubmed (Medline) ja FINNA – tietokantoja kahdessa erillisessä haussa (helmikuu 2024 ja huhtikuu 2024). Lisäksi aineistoa täydennettiin manuaalisella haulla. Hakusanat ja -strategia muodostettiin käsiteanalyysin ja koehakujen perusteella. Aineisto valittiin ennalta määrättyjen sisäänotto- ja poissulkukriteereiden mukaan ja aineiston laatu arvioitiin.</p> <p>24 artikkelia 779 hakutuloksesta täytti sisäänottokriteerit. Tutkimuksen tulokset osoittavat, että musiikkia käytetään laajasti ja monipuolisesti primaaripreventiivisessä terveyden edistämässä fyysisiä sairauksia ehkäistäessä. Tutkimustietoa aiheesta on kuitenkin vielä vähän ja yhtään pohjoismaista tutkimusta ei löytynyt. Tulokset ehdottavat, että musiikkia hyödyntävässä terveysviestinnässä on läsnä erilaisia musiikkiin liittyviä tunteita. Tällä hetkellä tiedetään kuitenkin vasta vähän, miten tunteet toimivat tällaisissa interventioissa. Tutkimustulokset tarjoavat myös näkökulmia, joita voidaan hyödyntää musiikillisten terveysviestintäinterventioiden suunnittelemisessa, toteuttamisessa ja arvioimisessa esimerkiksi pohjoismaisessa kontekstissa.</p> <p>Johtopäätöksenä voidaan todeta, että musiikki on arvokas resurssi primaaripreventiivisessä, fyysisiä sairauksia ehkäisevässä terveysviestinnässä. Kun musiikkia käytetään terveysviestinnällisessä interventiossa, musiikilliset näkökulmat tulee huomioida intervention jokaisessa vaiheessa. Ilmiöstä nousee lukuisia tutkimustarpeita, ja jatkossa tutkimus on tärkeää tuoda myös pohjoismaiseen kontekstiin. Tutkimus osoitti myös, että termi primaaripreventio sopii käytettäväksi musiikkitieteessä, kun tarkastellaan ennaltaehkäisyä ennen sairauden ilmenemistä. Tutkimustuloksia voidaan hyödyntää väestön terveyden edistämisen suunnittelussa.</p>	
Asiasanat: hyvinvoinnin edistäminen, musiikki, primaaripreventio, terveysviestintä, terveystieteet, tunteet	
Säilytyspaikka Jyväskylän yliopisto	
Muita tietoja	

## ACKNOWLEDGMENTS

My supervisor, PhD Emily Carlson (Clements), thank you for your kind, enthusiastic, professional, and punctual guidance.

PhD Arja Oikarinen, thank you for your important support in my considerations related to health sciences in this study. Thank you for saying yes when the concept of *Jos välitän* was just an idea. Without it, this study would not exist.

## FIGURES

FIGURE 1	Health Promotion.....	13
FIGURE 2	The Connection between Review Questions.....	28
FIGURE 3	An Example of an Analysis .....	35
FIGURE 4	The Use of Music in Health Communication for the Primary Prevention of Physical Health and Wellbeing....	41
FIGURE 5	Emotions in Music-based Health Communication .....	43
FIGURE 6	Learning Points from the World .....	51
FIGURE 7	Music as a part of Health Communication Intervention.....	55

## TABLES

TABLE 1	Quality evaluation, table 1 .....	32
TABLE 2	Quality evaluation, table 2.....	33

## TABLE OF CONTENTS

1	INTRODUCTION.....	8
2	THE SCIENTIFIC-PHILOSOPHICAL STARTING POINTS.....	10
3	THEORETICAL BACKGROUND.....	11
3.1	Health as a part of wellbeing and importance of preventive health promotion.....	11
3.1.1	Health.....	12
3.1.2	Preventive health promotion.....	12
3.1.3	Health communication as a tool of primary prevention and the importance of emotions .....	14
3.2	Preventive health promoting music .....	15
3.2.1	How musicology approaches preventive health promotion, especially primary prevention.....	16
3.2.2	About songs with a health message as a health communication strategy .....	18
3.2.3	The benefits of music as a health communicational tool.....	19
3.2.4	Music as a trigger of emotions and shaper of behavior.....	20
3.2.5	About evaluation of musical health interventions .....	21
3.3	A Nordic person as a target of the primary preventive music-based health communication.....	22
3.4	Summary .....	24
4	DESCRIPTION OF RESEARCH.....	25
4.1	Choice of research method – an integrative literature review .....	25
4.2	Purpose, aim, and review questions .....	27
4.3	Systematic literature search and selection.....	28
4.4	Quality appraisal.....	31
4.5	Analysis and synthesis .....	34
5	RESULTS.....	36
5.1	Music-based health communication promoting physical health and wellbeing at the level of primary prevention .....	36
5.1.1	Objectives of health communication .....	37
5.1.2	Target groups.....	37
5.1.3	Objectives of using music.....	38
5.1.4	Methods of implementation.....	38
5.1.5	Agents creating health communication .....	39
5.2	Emotions in music-based health communication intervention.....	42

5.3	Towards target effects in Nordic music-based health communication – learning points from the world .....	45
5.3.1	Customization.....	45
5.3.2	Resources .....	47
5.3.3	Quality.....	48
5.3.4	Marketing .....	49
5.3.5	Responsibility.....	49
5.3.6	Evaluation.....	50
6	DISCUSSION.....	52
6.1	Use of music in primary prevention of physical diseases – prospects.....	53
6.2	Quality and Ethics of the research.....	57
6.3	Conclusion and Recommendations.....	58
	REFERENCES.....	60
	APPENDICES.....	72

# 1 INTRODUCTION

If people would follow healthy lifestyles, many health problems could be prevented (Kinnunen & Konttinen, 2022, s. 14). My deep desire to understand the factors behind people's health choices and help them towards healthier lifestyles led me to study public health nursing one time. During my studies in 2010, I heard the news that newborns of Kainuu have the lowest life expectancy in Finland. I had already studied different kinds of methods of disease prevention. The news made me think about my real chances to help people understand the importance of healthy lifestyles. I began to wonder whether people really care about their lives and the song *If I Care* (Jos välitän) was born. Later the song became part of the health communicational If I care-concert product. At that time, I also understood that there is a connection between health behavior change, motivation, emotions, and music, which my musical primary preventive health promotion method strongly leans on. (Partanen, 2012.) The If I Care - concert tour occurred in Kainuu in 2014 (Partanen & Oikarinen, 2017, p. 37-41).

Working with *If I Care* showed me concrete possibilities of primary preventive musical health interventions. However, I also saw that the role of music in health care was mainly seen in patient care and therapeutic and rehabilitative contexts. (Partanen, 2012.) After many years of working life in health care, I had the opportunity to return to the subject from an academic perspective. I noticed that the situation regarding the use of music is almost unchanged. The concept of prevention has begun appearing to an increasing extent in music - wellbeing research (Bonde & Theorell, 2018, p. 1-2). However, a common vision of the multi-level content of the concept does not seem to have been formed yet.

This master's thesis draws attention to the different levels of prevention and the research focuses on the primary preventive perspective. The research focuses on using music in health communication when preventing physical diseases. This phenomenon has still been studied little internationally, and a broader examination of the phenomenon is justified. The research carries with it a Nordic perspective because there is no known previous Nordic research. The purpose of the research is to find out what primary preventive health-promoting music can offer when promoting people's health and wellbeing. The aim is to produce knowledge about primary preventive musical health promotion and its development so that it can be used in the future when



planning different methods to promote the health of the population. The main research problem is to study what kind of roles music and musical emotions have in the primary preventive health promotion of physical health and wellbeing.

This thesis examines the phenomenon using an integrative literature review as a research method. It enables the integration of existing research data about the phenomenon that exists but is still difficult to see (Torraco, 2005, p. 362). This multidisciplinary subject is approached from the perspectives of musicology and health science. The study is conducted at the Department of Musicology at the University of Jyväskylä, whose one of the key research topics is the wellbeing effects of music (Jyväskylän yliopisto, 2023).

This report is structured in six chapters. Chapter 2 presents the scientific-philosophical starting points of the research. Chapter 3 presents the theoretical background of the research. First, I go through the theory of wellbeing, health, and health promotion. After this, I go through the current state of preventive health promotion in the light of musicology. This research is particularly interested in the development perspective of primary preventive health promotion for Nordic people. In this context, I use a Finnish adult as one example of a possible Nordic target group. Finally, I summarize the need for research. Chapter 4 presents the description of the research. It includes reasons for choosing a research topic, goes through the purpose and the aim of the research, and presents the three review questions. After this, the course of the research is described in detail. In Chapter 5, I present the results of the research, and chapter 6 is for discussion, conclusion, and recommendations.

## **2 THE SCIENTIFIC-PHILOSOPHICAL STARTING POINTS**

The commitments behind the research affect the research (Hirsjärvi et al., 2013, p. 129). The worldview, i.e. paradigm of the research can be illustrated by using three concepts: epistemology, ontology, and methodology. Epistemology tells what the research's knowledge is based on and how it is formed. Ontology describes an understanding of the research object and the nature of the reality. (Hirsjärvi et al., 2013, p. 130.) The methodology describes how knowledge can be obtained (Hirsjärvi et al., 2013, p. 183-184).

In this master's thesis, music research is approached from the direction of health science. The formation stage of the theoretical background is guided by the my pre-existing understanding of music, health promotion, and musical health promotion. This thesis constructively approaches knowledge, i.e. humanistically and socially oriented. Research knowledge consists of various truths and information produced by people during the research process. The relationship between data and theory is abductive. The theoretical background guides the formulation of research questions and the research results are compiled from the data and the theoretical background.

### **3 THEORETICAL BACKGROUND**

This chapter presents the theoretical background of this research. At first, the concepts of wellbeing, health, preventive health promotion, primary prevention, and health communication are introduced. After that, the approach of musicology to preventive health-promoting music is described and music as a health communicational tool is opened. Next, a Finnish adult will be used as an example of a Nordic target group of music-based health communication. Finally, the most important aspects of the theoretical background are summarized. This lays the foundation for the methodological choices and research questions of this master's thesis.

#### **3.1 Health as a part of wellbeing and importance of preventive health promotion**

*Wellbeing* is a multidimensional concept (Karvonen et al., 2022, p. 11). Global inequality offers different manifestations of how wellbeing is understood and experienced. For example, an adult living in a Nordic welfare state may have a different perception of wellbeing compared to an adult living in a developing country. According to the World Health Organization (WHO), wellbeing is a positive experienced state at the individual level and societal level (World Health Organization (WHO), 2021, p. 10). It requires an adequate standard of living, opportunities for self-realization, and the experience of meaningful and human relationships (Karvonen et al., 2022, p. 11). Health can be seen as one component of wellbeing along with experienced wellbeing and quality of life as well as material wellbeing (Finnish Institute for Health and Welfare (THL), 2022a). This research does not commit itself to any single concept of wellbeing because the topic is approached internationally and multiculturally.

### 3.1.1 Health

In health research, it is fundamental to understand the concept of *health*. Defining health can be difficult because it is an abstract word with different meanings to different people (Earle, 2007, p. 37-38). According to WHO's classical definition, "Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (WHO, 1948). This definition has faced criticism for its impossibility of achievement (Huttunen, 2020; Earle 2007, p. 43). However, it can be stated that health is a significant value in people's lives (Green et al., 2019, p. 10; Patja, 2022b, p. 29). There is no such thing as perfect health. Today, the definition underlines experientiality, change, communality, and spirituality. Health is a resource for daily life, and it includes physical capacity and social and personal resources. (Patja, 2022b, p. 29.) It is affected by individual, social, structural, and cultural factors (determinants of health). According to the Universal Declaration of Human Rights (1948), article 25, everyone has the right to health and wellbeing (United Nations, n.d.). It is a basic human value that is also a prerequisite for social and economic development (Patja, 2022a, p. 15). The most important specifier of health is the person herself. When the person forms an understanding of her perceived health, she reflects her state of wellbeing on her own experiences, values, and attitudes. The experience of managing life increases the experience of health. Also, the person receiving a severe injury or disease treatment can feel healthy. (Huttunen, 2020.) In this research, health is a central concept.

### 3.1.2 Preventive health promotion

WHO defined *health promotion* in the 1986 in Ottawa Charter. According to it, "Health promotion is the process of enabling people to increase control over and to improve their health" (WHO, 1986). Today, the concept of health promotion is an umbrella term. It includes many kinds of societal action. Many concepts are also attached to it like health policy, global health policy, public health, disease prevention, health protection, healthy environment, and sustainable health promotion. Health promotion is a value-based, goal-oriented activity at the individual and population level. Its goal is to increase opportunities and prerequisites to take care of one's health and the health of the environment. (Patja, 2022a, p. 13-16). When promoting health, it is important to pay attention to social inequality (Lallukka & Rahkonen, 2022, p. 126). Several studies have repeatedly shown that in all western countries belonging to a lower class of society is a health risk. It more often leads to loss of health, long-term diseases, and death. (Manderbacka et al., 2022, p. 41.)

Health-promoting activities take place at different levels from global to individual. These levels should be recognized nationally and internationally (Pietilä & Terkamo-Moisio, 2019, p. 20.) At the global level, WHO guides and coordinates health-

related issues (WHO, 2023). At the EU level, health promotion is a widely accepted mode of operation (EuroHealthNet, 2023). In addition, there are several different levels at the national level. For example, in Finland, health promotion is guided by e.g. the Finnish Institute for Health and Welfare (THL) and the Ministry of Social Affairs and Health (STM). Health promotion is taken into account in Finland's new government program. Shifting the focus from remedial to preventive and early intervention in social and health care is written as an aim (Valtioneuvosto, 2023, p. 21). The goal has also been raised, for example, to use art and culture more widely than before in the realization of this goal (Valtioneuvosto, 2023, p.92). All of this can be summarized in the way that an individual's health choices and behavior take place in the living environment, for example political, sociocultural, economic, and physical, which can both create and limit opportunities that support health. (Rantala & Mäki, 2022, p. 108).

Health promotion includes promotion and prevention (Patja, 2022a, p. 15). Promotion creates opportunities to promote health and prevention prevent diseases and their consequences (THL, 2022b). Prevention is traditionally divided into three subdivisions (FIGURE 1). The framework was later supplemented with primordial prevention and quaternary prevention (Patja, 2022c, p. 158). In this master's thesis, the interest is directed to *primary prevention*. It refers to an action before the manifestation of a certain disease, directed at the population, population group, and individual. Examples of primary prevention include reducing risk factors and getting vaccinations, health checks, and health education. (Duodecim Terveyskirjasto, 2023.) Although primary prevention aims to prevent the occurrence of a disease, that person may have the disease without knowing it. This can be the case, for example, with diabetes 2 (Duodecim Käypä hoito, 2024); or HIV/ AIDS (Kivelä, 2021).

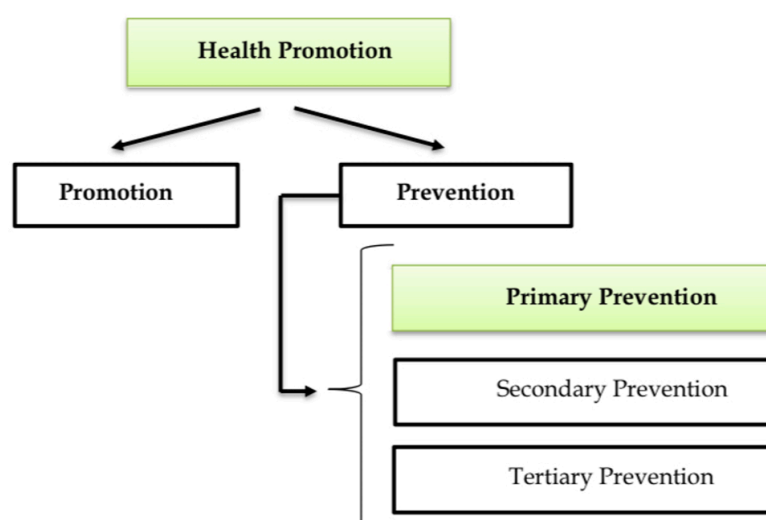


FIGURE 1 Health Promotion

Health is an important value both to individuals and to society. Measures that promote health and wellbeing can be used to curb health care costs, sickness absences, and early retirements (Ministry of Social Affairs and Health (STM), n.d.). However, the most important thing is the person. The main goal of disease prevention is to enable longer life expectancy and the best possible quality of life (Ryynänen, 2019, p. 113). From the point of view of a health promotion professional, motivating people who do not want to change their health behavior is challenging and the number of effective strategies is scarce (Hardcastle et al., 2015, p. 1). Health promotion is not solely the responsibility of the health sector (WHO, 1986). That is why it is useful to research and develop different approaches in a multidisciplinary manner, for example, the possibilities of music in promoting health. For example, according to Parvanta (2017, p. 64), the health communication skills of a health communication producer can be supplemented with other useful skills for health communication, such as art skills.

### **3.1.3 Health communication as a tool of primary prevention and the importance of emotions**

Broadly defined, *public health communication* is any means of influencing the individual and the population's health by multidisciplinary, utilizing various methods of communication (Parvanta, 2017, p. 64; WHO, 2021). At the individual level, perceptions of health and diseases are formed based on different levels of health communication received during life. We face and are influenced by health communication, for example, from health care, private health information producers, loved ones, other people, and media. Although, all information we receive is not evidence-based or beneficial for health. (Järvi, 2022, p. 320-321.) Health literacy can help with this. Health literacy is personal knowledge and competencies, which are needed, for example, to understand and evaluate available information (WHO, 2021). This thesis focuses on the perspective of positive health communication.

Primary preventive health communication includes the effort to influence behavioral factors and lifestyles such as modifiable risk factors (Chou et al., 2017, p. 1057). Examples of these risk factors are using nicotine products, bad eating habits, immobility, and infection prevention. Essential aspects of health communication are health thinking and behavior and adding correct information. In general, health behavior is what we do or do not do for our health (Rantala & Mäki, 2022, p. 106). Positive lifestyles create positive opportunities and effects.

According to Parvanta (2017, p. 74), health communication is a key tool when trying to influence health behavior. It can be used in efforts to influence both the individual's health behavior and, for example, to convince politicians to make decisions that support a healthier living environment (Parvanta, 2017, p. 74). Via health

communication, it is possible to provide information and increase health literacy (Parvanta, 2017, p. 96). The concept of *health message* can be associated with health communication. As its name suggests, it means a health-related message, which is conveyed using health communication. The goal of the message is to influence health thinking and behavior. (Morrison et al., 2005, p. 540.)

When talking about health communication, the role of emotions should not be forgotten. Emotions guide people's behavior and are the key to a person's experience. Emotions affect how the person reacts and makes decisions. They help to prioritize, evaluate goals, and activate to act. Emotions work under the influence of the body, state of mind, and the environment, and these factors also affect the intensity of emotions (e.g. Baumeister et al., 2007; Nummenmaa 2019, chapter 1.) Scientific definitions have described the experience related to emotions in different ways. *Feelings* and *emotions* are more short-lived and more intensive than *moods*. Most emotions can be observed and measured as physiological responses. Instead, feelings are more private experiences. Term *affect* is most often used as an umbrella term for feelings, emotions, and moods. (Peltola et al., 2022, p. 370.) In this research, the term emotion is used to describe this set of emotions.

Emotions play a central role in prevention-oriented health campaigns. The emotional experience (emotional imagery, emotional appeals) can help the target audience to pay attention to the health message and enable an individual's motivation by creating a feeling that it is important to act on the issue (Gall Myrick, 2015, p. 164-165). Also, higher emotional intensity helps make the health message easier to recall (Gall Myrick 2015, p. 178).

In health campaigns, the means of health communication can be to evoke a certain emotion, such as fear. However, other emotions coming from the health message (i.e., message content and implementers) and from the recipient are also present in the communication situation. (Gall Myrick, 2015, p. 164-165.) Especially fear appeals have been used and examined in health campaigns. However, the effectiveness of positive and mixed emotional messages should not be forgotten. (Gall Myrick, 2015, p. 176.) An effective health message should take into account both the emotional nature of the message content and the likely emotional reactions of the recipient of the health message (Gall Myrick, 2015, p. 163).

## **3.2 Preventive health promoting music**

The connections between music and health have been thought about for millennia (Juslin & Sloboda, 2010a, p. 940). However, research on the subject is still young. The effects of art on health and wellbeing have been studied to an increasing extent since the beginning of the 21<sup>st</sup> century (Fancourt & Finn, 2019, p. vii; MacDonald, 2013, p. 1). Today music and health can be discussed as a wide field that promotes health and wellbeing in

everyday life. (Bonde & Theorell, 2018, p. 1.) According to Bonde and Theorell (2018, p. 2), *Music and public health* is a new field, where the public health perspective is approached in a multidisciplinary way by different professionals like social scientists, music psychologists, medical doctors, music therapists, and health professionals. In the Nordic countries, the first conference on Music and Public Health was organized in November 2011. (Bonde & Theorell, 2018, p. 1-2.) Bonde and Theorell (2018, p. 5) recognize that different concepts, definitions, and theories are used within the music, health, and well-being area.

### **3.2.1 How musicology approaches preventive health promotion, especially primary prevention**

Researchers have developed various frameworks to describe the connections between music, health, and wellbeing. MacDonald's, Kreutz's, and Mitchell's *Conceptual model for music, health, and wellbeing* (Orig. 2012, update 2013 by MacDonald) includes five elements: Music therapy, Community music, Music education, Everyday uses of music, and Music and medicine. The elements partially influence the cross, and it recognizes the importance of multidisciplinary dialogue between music, health, and wellbeing professionals. (MacDonald, 2013, p. 1-5.) In a broad sense, health promotion can be seen as included in all components. From the point of view of primary prevention, MacDonald highlights the possibilities of using music to support self-confidence, and self-esteem, and manage emotions and stress (MacDonald, 2013, p. 2,4). For example, these psychosocial factors and resources are important when thinking about how we face and work with factors that affect our health and wellbeing (Konttinen, 2022, p. 99). However, the role of music as a primary preventive health promoter does not come out clearly written in this framework.

According to Bonde, the *Health musicking* concept was first developed in 2002 by Norwegian Brynjulf Stige (Bonde, 2020, p. 152). This was originally developed based on music therapy theories, but it sees possibilities of music for health and wellbeing in a multidisciplinary way and expands the scope beyond the field of music therapy. Stige describes the importance of arena, agenda, agent, activity and artefact components, and interaction rituals in health musicking. (Stige, 2012, p. 191-192.) Bonde's definition of the concept (2012) is that health musicking is "any use of music activities and music experiences to regulate physical, emotional and relational states, typically to promote the experience of wellbeing" (Bonde, 2020, p. 152). His four main purposes of health musicking are "1) Identity formation and development through music, 2) The professional use of music and sound to help individuals, 3) The development of communities and values through music, and 4) Creating and sharing musical environments" (Bonde, 2020, p. 152). However, the primary preventive aspect of health promotion does not come out clearly in these frameworks.



Stegemann et al. (2019, p. 2) have illustrated music-based health care intervention types with three components which are Music medicine, Music Therapy, and Other music-based interventions. Music therapy is the systematic and tailored use of music within a therapeutic relationship provided by music therapists. Music medicine is passive music listening provided by health care professionals. Instead, other music-based health promotion interventions can be provided by various agents from different backgrounds such as health professionals and musicians. (Stegemann et al., 2019, p. 2.)

In the book *Music and Public Health: A Nordic Perspective* (2018) the preventive perspective is recognized as one important part of the context of music, health, and well-being. At the same time, it describes challenges in producing research data on this subject and the unexplored nature of the field. Although the book deals with this topic using concepts of prevention and prophylactic (Bonde & Theorell, 2018, p. 3, 9.), unfortunately, the authors do not explore these concepts in much detail. Such exploration would be important because the concept of prevention includes different levels as previously mentioned. The concept of prophylaxis is more familiar from the medical side. It is defined by words like protection, advance prevention, and preventive medication (Duodecim terveyskirjasto, 2016). The concept is used, for example, when it is necessary to give antibiotics to the patient to prevent infections caused by surgery (Rantala, 2005). The book's part *Music as a Prophylactic Recourse: Examples of Projects and Initiatives* gives examples of how music can support one's own psychological health behavior skills, promote mental health, and, for example, how music can support relationships between under one-year-old children and parents. (Bonde & Theorell, 2018, p. 9-10.) Using music as a preventive health communication tool does not appear in the book.

In light of previous Nordic and international research knowledge and frameworks, the understanding of the connection between music and health and wellbeing is strong in treatment and rehabilitation situations. The preventive perspective and its development seem to lean on music therapy traditions. From the point of view of primary prevention, the possibilities of music as a supporter of mental health are convincingly identified (e.g. Koelsch & Stegemann, 2012; Saarikallio, 2017) There is also Nordic and international research data about music as a support for self-regulation, which can affect, for example, emotional eating (Van Den Tol et al., 2020), sleep quality (Dickson & Shubert, 2019), sports motivation (Gfeller, 1988; Burke & Orlic, 2003) and stress reduction (Västhjäll et al., 2012; Baltazar, 2019). This point of view is related to the fact that it is possible to use music to maintain a healthy lifestyle.

Based on the descriptions above, I get the impression that understanding primary prevention in musicology is related to how music itself, when used appropriately, for example, by listening and as part of practicing healthy lifestyles can produce preventive, health-protecting, promoting, or maintaining effects. Using music as a health communicational tool (i.e., there is a health message in the music), for example, to influence one's own or someone else's health thinking or health behavior does not come out clearly in the Nordic context. Instead, Fancourt and Finn (2019) paint a wider understanding of the possibilities of music in preventive health promotion internationally in the WHO's

Health Evidence Network synthesis report 67 (scoping review). They take most clearly a stand on the multiplicity of the preventive perspective, including primary prevention. They see research as important. Fancourt and Finn pay attention, for example, to music as an encourager for health-promoting behavior. However, the usefulness of different arts is described on a general level. They bring up the use of the arts as a tool for health communication with some music examples. The possibility of musical health communication is mentioned concerning the prevention of communicable diseases. (Fancourt & Finn, 2019, p. 18.)

It is clear that musicology in general, the Nordic countries as a special consideration needs an increasing understanding of the use of music in primary preventive health promotion. The use of concepts also needs clarity. As Amu has stated in back 2001: “We need a global reformation of musical health education in our lives” (Amu, 2001, p. 95). But why has this sub-area and a health communication perspective received little attention, especially in the Nordic Countries?

### **3.2.2 About songs with a health message as a health communication strategy**

The evidence obtained shows that songs can be an effective health communication strategy (Cournoyer Lemaire, 2020, p. 479; Sheffield & Irons, 2021, p. 288). Songs have been used to convey health messages for decades (Sheffield & Irons, 2021, p. 287). Today, most research data from health-promoting songs have been accumulated from developing and low-middle countries from people with low literacy (Sheffield & Irons, 2021, p. 287). The use of art-based health promotion has its roots in traditional cultures that have guided behavior primarily through storytelling, drama, and music (Sonke & Pesata, 2015, p. 36). This may be one key reason why this kind of use of music is not common in Nordic and welfare countries. In Finland, perhaps the best-known song with a health message is the children’s song *Popsi popsi porkkanaa* by Markku Kopisto (music) and Asta Kaukonen & Chrissi Johansson (lyrics) from 1979. Also, The Finnish Public Service Media Company has published a new song promoting sexual health for young people every year since 1996. The song was commissioned from a well-known artist and was made more for humor than for serious work. (Aunila, n.d.) *My If I Care* (Jos välitän) product includes five songs, speeches related to songs, and three instrumentals for adults of working age. Its theoretical background leans on the chain connecting behavior, motivation, emotions, and music. It was the first of its kind in Finland. (Partanen, 2012.) In 2019, Metropolia University of Applied Sciences published five songs about vaccination for children (Metropolia AMK, 2020).

### 3.2.3 The benefits of music as a health communicational tool

Music is a multidimensional communication channel that enables, for example, the sharing of information, emotions, and interaction (Hargreaves et al., 2005, p. 1). There is evidence of music's ability as an effective tool for public health. According to Cournoyer Lemaire's summary of previous studies (2020, p. 477- 479), the benefits of using music are *population outreach* (the ability of music to hold an individual's attention, the enjoyment of listening to music, easy access to music, structural properties of music), *effective communication* (universally recognized communicative tool, the ability of music to cross cultural and linguistic boundaries and to generate social bonds between communities and individuals, music helps to absorb information) and *behavior modulator* (the ability of music to affect emotions and evoke positive emotions, regular exposure to music increases the likelihood of music influencing behavior). (Cournoyer Lemaire, 2020, p. 477-479.) In addition to these, compared to traditional health campaigns, songs can offer a more cost-effective option (Bahri et al., 2016, p. 4-5).

Sheffield and Irons did the first systematic review on the topic in 2021. This review, conducted in England, focused on health communication songs that have an educational and motivational quality. The review aimed to evaluate the evidence for the effectiveness of songs and to analyze the essential characteristics of song lyrics. From the 588 results of the first search, ten studies were included in the final evaluation, of which four were quantitative (assessed as reasonable) and six were qualitative (assessed as high quality). The inclusion criteria were, for example, on the date of publication (2000-2020), the actual impact of the articles had to be an assessed, peer-reviewed scientific publication, and the requirement to be in English. Geographically, three studies were conducted in the United States, four in Africa, and the remaining three in India, Laos, and Nepal. Most of the studies were related to HIV/AIDS and otherwise malaria, maternity care, and oral hygiene. Low literacy and developing countries and countries with a low middle-income level were reflected in the targeting of health communication studies. Sheffield and Irons state based on current evidence that health communication songs can be an effective way to carry health messages. (Sheffield & Irons, 2021, p. 280-288.) They recommend cooperation between musicians, public health experts, and participants, consideration of cultural and social stakeholders, and "song should promote both individual and collective efficacy to carry out recommended health behaviors and not focus only solely on threat" (Sheffield & Irons, 2021, p. 288). According to Sheffield and Irons (2021, p. 288), studies included in the review did not evaluate the influence of cultural, social, and psychological processes on health behavior and clinical outcomes.

The health message can be included in the songs and music in general, and conveying the health message may be the main reason for the song's existence. On the other hand, humanity has made countless songs without planned health messages

throughout its history. Understandably, it is possible to find music suitable for positive health communication from music originally made from other points of view.

When looking at music aiming to promote health, on the reverse side of the coin can be seen the potential of using music to also negatively influence, for example, health thinking, health choices, and behavior. This existence of this perspective is important to recognize when talking about the use of music in health communication. The point of view is related, for example, to lyrics that idealize the use of intoxicants (e.g. Engels et al., 2011; Holody et al., 2016). Music is also used for business purposes, for example, by placing products harmful to health in music videos (e.g. Primack et al., 2012; Rath et al., 2023). In the light of previous research data, researchers have recognized the importance of taking perspective into account when preventing health challenges and policy, and the importance of being aware of this phenomenon (e.g. Engels et al., 2011, p.533; Sloane et al., 2013, p. 51; Gallopel-Morvan & Moodie, 2017).

### **3.2.4 Music as a trigger of emotions and shaper of behavior**

Studies show that music can evoke and affect emotions and there are many mechanisms behind them. In 2008, Juslin and Västfjäll presented a theoretical framework where they described how listening to music can create emotional experiences. These mechanisms are (1) brain stem reflexes, (2) evaluative conditioning, (3) emotional contagion, (4) visual imagery, (5) episodic memory (6) musical expectancy, and (7) cognitive appraisal (Juslin & Västfjäll 2008, p. 563). In 2013, Juslin supplemented the mechanism description with (8) aesthetic judgment (Juslin, 2013).

There are many theories and models of emotions. There is also overlap in the models (Eerola & Vuokoski, 2013, p. 310). Four theories in particular have been used in music psychology: basic emotion theory, appraisal theory, psychological construction theory, and social construction theory (Warrenburg, 2020). The most used models in music and emotion research are a categorical model and a dimensional model (Peltola et al., 2022, p. 373). The categorical model classifies emotions into basic emotions: pleasure, sadness, disgust, anger, fear, and astonishment (Eerola & Vuokoski, 2013, p. 309-310; Nummenmaa, 2019, chapter 1.; Peltola et al., 2022, p. 373). The dimensional model examines feelings and reactions describing opposite dimension pairs. The most commonly used dimensional model is Russel's model (1980), where there are valence and arousal dimensions. Both of these are used in musical emotions studies. (Eerola & Vuokoski, 2013, p. 309-310; Eerola & Saarikallio, 2010, p. 264-265.) But because they were not originally developed for the study of music, they aren't optimal for musical emotions research. They, for example, do not take into account the aesthetic emotions typical of music and cannot fully explain why people react to music, and how they react (Peltola et al., 2022, p. 373-374). The most well-known model developed for music emotional research is Marcel Zenter's Geneva Emotion Music Scale, (GEMS), 2008.

This dimensional model includes nine emotional dimensions. However, the model does not, for example, recognize negative emotions that music can evoke, for which it has also received criticism. (Peltola et al., 2022, p. 374-375.) When studying the connections between music and emotions, it is fundamental to consider the appropriate approaches and components related to the research phenomenon (Eerola & Vuokoski, 2013, p. 307).

Like emotions, music is also an important part of human life. Music is, for example, part of our social situation, our free time, and our values (Saarikallio 2010, p. 279). Experiencing music through the sense of hearing and its temporal nature are its strengths (Peltola et al., 2022, p. 370). It has been found that people also recognize the emotional messages of music from a musical culture foreign to them (Tan et al., 2010, p. 265). Music can also reach all age groups of people. However, everyone experiences musical emotional experiences individually. (Saarikallio, 2010, p. 286-288.)

Using music in a health communication campaign enables the health message to be experienced on a more personal level. According to Gall Myrick, if the person's current state of health does not motivate the person to change, by evoking emotions it is possible to make the person who experiences this way feel something. This can help her to promote a positive behavior change (Gall Myrick, 2015, p. 244).

In the field of music psychology, Västfjäll, Juslin, and Hartig (2012) consider the role of emotions to be central to achieving the desired health effects. However, they associate the role of music in this context with managing or regulating emotions and stress. (Västfjäll et al., 2012, p. 406.) Juslin and Sloboda (2010b, p. 86) state that “under certain circumstances, music-induced emotions may have profound, even life-changing behavioral consequences” (Juslin & Sloboda, 2010b, p. 86). However, they do not refer in this context to changing health behavior from the perspective of physical diseases.

Gall Myric (2015, p. 174, 246) brings up the connection between music and health behavior. She states that music can both make a health message more appealing and interest in a piece of music can also help maintain interest in the health message. She also points out that although music can support a health campaign, inappropriate music can act as a disturbing element. Gall Myric (2015, p. 165) recommends to study how emotional health campaigns impact persuasion and behaviors. Because there is such a strong connection between emotions and behavior, she states that its research is important for advancing the theory and practical applications of health communication (Gall Myrick, 2015, p. 244).

### **3.2.5 About evaluation of musical health interventions**

Despite the long history of songs with health message, the number of high-quality studies is low (Cournoyer Lemaire, 2020, p. 479; Sheffield & Irons, 2021, p. 288). The research

literature clearly highlights the small amount of research data and the need for further research (for example Cournoyer Lemaire, 2020, p. 479; Sheffield & Irons, 2021, p. 288; Sonke & Pesata, 2015, p. 39).

Intervention refers to any activity that aims to improve human health. There are different types of intervention. The classical distribution divides the intervention types into preventive and therapeutic categories, but they are not mutually exclusive. Preventive interventions include, for example, influencing behavior change, vector and intermediate host control, and injury prevention (Smith et al., 2015, p. 5-11)

Different methods have been developed to measure the health and wellbeing effects of music interventions. Despite this, measuring the effects is challenging. (Ukkola-Vuoti, 2019, p. 1348.) That is understandable, as it is challenging even without the music component. According to Tolkki et. al. (2022, p. 190-192), the basic problem is that there is no direct connection between performance and effectiveness and the effects may be visible only after a long time. On the other hand, the impact of other factors such as genes, attitudes, values, living environment, and other treatment and prevention measures can be difficult to assess. The typical ways to try to answer the challenges from the point of view of health sciences research are systematic reviews and meta-analyses, experimental designs, quasi-experimental designs, follow-up or comparative designs, and case studies. (Tolkki et al., 2022, p. 190-192.)

### **3.3 A Nordic person as a target of the primary preventive music-based health communication**

Nordic countries are Finland, Sweden, Norway, Denmark, and Iceland, and self-governing regions Åland (Finland), Faroe Islands (Denmark), and Greenland (Iceland). The Nordic welfare state model is unique on a global scale. The model aims to offer everyone equal opportunities to live life and equalize inequality. (Nordic Co-operation, n.d.a). In the Nordic countries, the average life expectancy is 80 years, and the infant mortality rate is one of the lowest in the world (Nordic Co-operation, n.d.b). The Nordic population structure is changing. In Finland, for example, the number of immigrants was the highest in 2023 since the measurement history (Tilastokeskus, 2024). The needs for primary preventive health promotion can be identified at different stages of the life cycle. Next, I use Finland as an example country, and I use a Finnish adult as a target of music-based health communication as one example.

According to Finnish law, adulthood begins at 18 years of age (Laki holhoustoimesta 442/1999). With industrialization and social changes, the transition from youth to adulthood has become longer. Arnett named this period between about 18-25 years old *an emerging adulthood* in 2000. It is a time when a person searches for their own identity, makes choices and faces changes. (Arnett, 2000, p. 469, 479.) It

involves taking responsibility, independent decision making and financial independence (Arnett, 2000, p. 473). Adulthood can be roughly divided to early adulthood (20–40-year-old) and middle aged (40–65 years old) and late adulthood. Adulthood includes various roles, responsibilities, and also changes, like work, hobbies, tasks, and social roles. As the body ages, changes begin to occur, for example, about the senses. (Pulkkinen, 2023, chapter 5.) Consideration of individual starting points and variation is important.

The health of Finns has improved. However, health is unevenly distributed. The sickest provinces are North Savo, North Ostrobothnia, and North Karelia (THL, 2022c). An individual's health behavior has a major impact on lost years of life, for example, cardiovascular diseases, alcohol-related deaths, and accidents (Manderbacka et al 2022, p. 49). Risk factors for non-communicable diseases are, for example, unhealthy nutrition, lack of exercise, smoking, heavy alcohol consumption, and obesity (THL, 2019). In Finland, preventive health services for adults are organized mainly by student health care (Laki korkeakouluopiskelijoiden opiskeluterveydenhuollosta 695/2019); and occupational health care (Työterveyshuoltolaki 2001/1383).

After transitioning to adulthood, the person carries with her the learned lifestyles from childhood (Patja, 2022c, p. 87). Changing learned habits can be challenging. However, it is possible (Patja, 2022c, p. 87). The motivation experienced by the person is important and it can be found with the help of external guidance. Empirical studies have clearly shown that self-motivation can lead to long-term changes. (e.g. Teixeira et al., 2012; Samdal et al., 2017.) There is a consensus that the independently thinking and acting adult needs some kind of stimulus to start to question one's actions and to take the necessary steps.

Adult's musical preferences are individual. It is affected by, for example, the personality of the listener, music listening goals, prior exposure, and social context (Meyers 2012, p. 31). In general, it can be stated that the mind and body react especially to listening to music that is pleasing to the individual. This can be concretely observed, for example, as responses in the brain (e.g. Särkämö et al., 2014); or as relaxation. (e.g. Lingham & Theorell, 2009.) On the other hand, inappropriate music can make a person feel aversion or strong dislike (Peltola & Vuokoski, 2022). Compared to the last ten years, Finns listen to different genres of music in a more versatile way. In the year 2023, the most popular genres were Finnish pop, metal/hard rock, and traditional rock. (Tervonen, 2023.) When planning and implementing a musical health communication intervention, it is important to understand an adult's individuality from the starting points not only of wellbeing but also of music.

In general, health intervention planning is systematic and includes different steps where the previous steps influence each other (Bartholomew Eldridge et al., 2016, p. 3). The health intervention design and the overall intervention process are described with different process models. For example, the Six Steps in Quality Intervention Development (6SQuiID) by Wight et al. (2016) deals with 1) defining the

problem and understanding its causes, 2) identifying change opportunities and beneficiaries, 3) choosing a change mechanism, 4) implementation method of the change mechanism, 5) testing and adapting the measure, and 6) evaluation. The model of Intervention Mapping includes six steps for planning interventions as well: 1) understanding the health problem and target group, 2) setting change goals, 3) specification of the mechanism of influence and selection of change mechanisms, 4) drafting and adapting the intervention to practice, 5) implementation planning and 5) effect and process design (Bartholomew Eldridge et al., 2016, p. 13). On the other hand, for example, The PDCA Cycle by W. Edwards Deming is suitable for describing the process of carrying out change. The steps of this model are 1) plan, 2) do, 3) check, and 4) act. (Beckford, 1998, p. 67.)

### 3.4 Summary

When looking at preventive health promotion in musicology, interest in it has increased especially in the last ten-fifteen years. However, there is still no clear overall picture of what preventive health promotion, especially its primary preventive level, is in musicology. Also, there is still no clear consistency in the use of concepts. Furthermore, research focusing on a preventive perspective strongly reflects the traditions of music therapy. Primary prevention of physical diseases is not clearly visible in the current music-wellbeing frameworks, and the lack of a Nordic perspective came to light. Clearly, a broader understanding of music-based primary preventive health promotion is needed.

Music as a health communication tool is a good starting point to examine the primary preventive possibilities of music in promoting health. The primary preventive health communication expresses positive goals related to the development of one's own health-related thinking, health choices, and ultimately health behavior. The primary prevention includes both education and counseling, which can also be offered through music. Emotions are connected to both music and effective health communication. Because of this, it is important to take this special connection into account when handling the matter.

The different ways of making and receiving music, different target groups including, for example, age and cultural group, the goal of health communication and geographical location, and agents of musical health communication create many possibilities to approach the subject. Approaching musicology from the perspective of health sciences instead of music therapy can offer refreshing perspectives. Increasing musicological knowledge is also useful for health sciences.



## 4 DESCRIPTION OF RESEARCH

The theoretical background offers many options and raises many questions for me: What is preventive health promotion, especially primary preventive health promotion, in today's musicology? What it is especially from a Nordic perspective? Or on the other hand, what it could be, especially considering the emotional aspect? It is also important to ponder what concepts make sense to use and what music-based primary preventive health promotion means in general. Is it appropriate to use, for example, the concept of primary preventive health promotion? In this chapter, I describe my research process and justify my choices starting from the choice of research method and forming of the research's purpose, aim, and questions, ending at the analysis and synthesis of the research.

### 4.1 Choice of research method - an integrative literature review

I have decided to approach the phenomenon using a literature review as a method. Based on the previous studies, producing new knowledge using empirical methods would be useful. However, considering the lack of clear consistency around the phenomenon and its conceptualization, it is more justified to focus on the basics and lay the foundation for the phenomenon in light of the previous data. This also serves possible further research on the subject. The *target groups* of this literature review are music researchers and those who use music as a work method. In the longer term, this may provide health benefits at the grassroots level.

The literature review is a research method, which is used to gather and synthesize information from a range of original studies. In this method, the researcher sets a research (review) question or questions and looks for an answer to them by critically examining existing knowledge. By using this method, it is possible to identify, evaluate, interpret, and combine existing key information and create a synthesis. The

literature review process involves systematicity, criticality, transparency, and also creativity. (Bearfield & Warren, 2008, p. 62-63; Paul & Criado, 2020, p. 1; Vilkkka, 2023, p. 11-16.)

There are several ways to do the literature review. Methodological research has developed both new subspecies and improvements to existing ones in recent decades. The four main types are narrative literature, integrative literature, systematic literature, and meta-analysis. (Vilkkka, 2023, p. 19.) Each has its strengths and weaknesses and also discipline-specific differences of opinion (Vilkkka, 2023, p. 16, 20). The integrative literature review is a method that is located in the middle ground between the narrative and the systematic review. It includes descriptiveness, but it approaches the systematic review in its systematicity and criticality. (Toronto, 2020, p. 2; Vilkkka, 2023, p. 25.) The integrative literature examines the research phenomenon more broadly compared to the systematic review and the research data may contain that which is judged to be of sufficient quality and produced by different methods (Whittemore & Knafl, 2005, p. 547, 549-550; Toronto 2020, p 2).

The phenomenon I am researching exists, but it is not clearly visible in the music and wellbeing frameworks in musicology. Because the phenomenon is hardly visible in the Nordic Countries, a global approach to the question offers better opportunities to examine the phenomenon. Using the integrative review methodology, it is possible to generate new frameworks and perspectives (Torraco 2005, p. 356). It can also reveal information that has been hidden over the years (Torraco 2005, p. 362). According to Torraco (2005, p. 357), the integrative literature enables dealing of so-called mature topics, but also new and emerging topics. The integrative review is especially useful for such new themes “that would benefit from a holistic conceptualization and synthesis of the literature to date” (Torraco, 2005, p. 357). Therefore, the integrative review is a reasonable choice for the phenomenon I am studying.

The integrative literature enables the examination of data produced by different methods. The purpose of the research guides the researcher in these choices. (Whittemore & Knafl, 2005, p. 547; Hopia et al. 2016, p. 662; Vilkkka, 2023, p. 25.) Hopia, Latvala, and Liimatainen (2016, p. 667) also highlight the importance of nonacademic literature. They question whether a review using only academic sources is truly integrative, as key information may be missing (Hopia et al. 2016, p. 667)? In any case, successful integrative literature is transparent, repeatable, and accurate (Whittemore & Knafl, 2005, p. 551; Vilkkka, 2023, p. 25).

Conducting the integrative literature review is a process, that progresses in a certain order, but where one can mirror what is to come and refine what has already been done (Whittemore & Knafl, 2005, p. 550; Vilkkka, 2023, p. 40). In the book, *A Step-by-Step Guide to Conducting an Integrative Review*, Toronto (2020, p. 5-8) presents five steps for implementing the integrative literature mirroring Cooper’s (1982, 1984) original framework. The five steps are 1) Forming the research purpose and/or research question(s), 2) search and systematic selection of literature, 3) quality appraisal,

4) analysis and synthesis, and 5) discussion and conclusion. According to Toronto, the perspective of disseminating research information can also be included in the process. (Toronto 2020, p. 5-8.)

## **4.2 Purpose, aim, and review questions**

*The purpose* of this thesis is to find out what primary preventive health-promoting music can offer when promoting people's health and wellbeing. *The aim* is to produce knowledge about primary preventive musical health promotion and its development so that it can be used in the future when planning different methods to promote the health of the population. There are three review questions:

### **RQ 1 : What is currently known about using music in health communication for the primary prevention of physical health and wellbeing?**

This question examines a musical preventive health and wellbeing promotion as a phenomenon. It concentrates on physical health, but does not limit how mental health might affect physical health choices and emotional responses to music.

### **RQ 2 : By what mechanisms could musical emotion influence health choices and behavior?**

This question examines how music is working focusing on the importance of musical emotions in health choice and behavior process.

### **RQ 3 : What kind of musical health communication could be useful in thinking about preventive health choices made by Nordic people?**

This question examines what can be understood about the phenomenon at this stage and what could be done later.

A connection can be seen between the review questions presented above. This is illustrated in the diagram below.

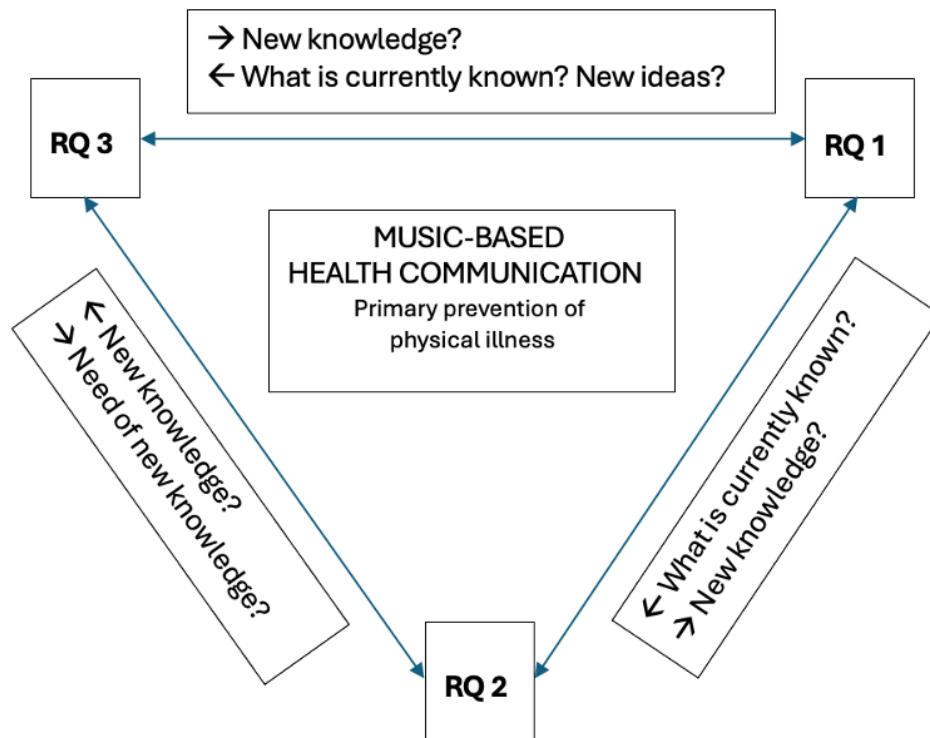


FIGURE 2 The Connection between Review Questions

### 4.3 Systematic literature search and selection

Three review questions were set for the integrative review. A concept analysis was formed based on these questions and the theoretical background in November 2023 (ANNEX 1). The concept analysis helped form the search strategy. The phenomenon under study had been little studied before. This brought challenges in finding the right keywords for the search engines. The MOT dictionary was used. The concepts of well-being and art were found to be too broad. The Nordic point of view was taken into account in the keywords. During the systematic search phase, a librarian was consulted twice (December 2023 and January 2024) to clarify search terms, database

options, and search strategy. Utilizing the librarian is especially useful when the integrative review is carried out by one researcher (Lawless & Foster, 2020, p. 21).

The researched phenomenon included especially musicology and health science but also, for example, psychology. This served as a starting point for the selection of suitable databases. The research carried out two information retrieval processes. The aim was to identify as much as possible important studies by mirroring the obtained results to the research questions. The first search was implemented in February 2024 and the second, supplementary search for the RQ 2 was implemented in April 2024. For the first information search, five databases were chosen: specialized databases PsycINFO and PubMed, Interdisciplinary databases Scopus and FINNA, and Music database Music Periodicals Database (ProQuest). A manual search was also performed by using hand-searching from Google Scholar, by viewing the references and citations related to chosen articles and from subject experts (no affiliations). For the second search, two databases were chosen: PsycINFO and Music Periodicals Database. Before both official searches, a test search was carried out. The test searches were used to identify the most suitable search words and fields for each database so that the search is not too broad or narrow. Databases MEDLINE and CHINAL were also tested related to the first search. However, the search results were too large, and narrowing them down to serve the research was challenging. The obtained results did not add value to the results already obtained from previous databases. In the second search databases PubMed, Scopus, and CHINAL were also tested. However, no added value was obtained from these searches. The search phrases were formed using Boole's logic and search engine-specific techniques. (Lawless & Foster, 2020, p. 27-31; Vilkkä, 2023, p. 58-59). The database-specific search strategy with selected search words is described in detail in ANNEX 2 and ANNEX 3 (searches 1 and 2).

Boundary conditions (inclusion and exclusion criteria) were also defined for both searches and the research (Remington 2020, p. 45-46; Vilkkä, 2023, p. 68-69) Language had to be English or Finnish. The included studies had to answer at least review question 1 in the first search and review questions 1 and 2 in the second search. The studies had to deal with the primary preventive level of health promotion and prevention of physical diseases. Because the theoretical background showed little information can be expected about the phenomenon, especially from the Nordic countries, no limitations related to age, geographical location, or preventive physical diseases were not made. All kinds of music were considered, but music had to play a central role in health communication. Material from the previous 15 years was included in the study. This timeline was chosen taking into account the information provided by the theoretical background of this research. The searches were limited to peer-reviewed papers if it is possible. The data had to be available free of charge. The inclusion-exclusion criteria are described in ANNEX 4. The accuracy of the official searches was further verified by repeating the search to minimize errors. The first search gave a total of 756 results.

Next, the obtained material was examined based on the titles. The material was managed using the Zotero reference management system, and duplicates were removed. In the first search, 105 papers were selected based on previously defined criteria. After that, the result material of the first search was processed at the abstract level. The material was transferred to the Excel information management system. The abstract selection phase included two rounds. In the first round, the abstracts were divided into rejectable and potentially useful to very interesting papers. In the second round, the final selection was made. At this stage, there were still papers that contained musical communication that was harmful to physical health. It was decided to evaluate the significance of these for the study in terms of content. Eventually, 57 papers were selected for content review based on the first search.

The content review was started with the results of the first search. At this stage, the papers to be considered for the study were tabulated in Excel. At the same time, I started taking notes and reflecting on the three review questions. There were three paid papers. If the content of the paid article seemed particularly significant and the researcher's contact information could be found the researcher was asked about it directly. This was done for one article. In the content search phase, compared to the rest of the material, two articles loosely related to the goals of health promotion clearly stood out. These were discarded. In the content review phase, the material related to music was narrowed down even more precisely. The role of music had to be clearly distinguishable and, for example, musical theater and radio drama using music were delineated. In addition, in the content evaluation process, two such articles were excluded from the research, which had been used in the creation of the theoretical background. These articles included many of the same sources as the material for this study.

The second search of the study (ANNEX 3) was carried out at this stage of the study and the process proceeded in the same way as for the first search. The second search gave a total of 23 results. Three of these were suitable based on the titles. However, the searches of the second search did not offer new studies to be included in the material compared to search 1. The second search was also done in PubMed, Scopus and CHINAL databases. However, this attempt did not add value to the results already obtained from databases PsycINFO and Music Periodicals databases, as I described earlier. Eventually, 27 papers were selected based on search 1, and 0 papers based on search 2 proceed to quality assessment. The information retrieval process is described in ANNEX 5 (search 1 and 2).

In summary, at the beginning of the research, the criteria for the material were not limited too strictly in terms of content, so that the review would offer the widest possible understanding of the subject. The criteria were specified as the process progressed. In the end, 27 papers of 779 search results progressed to the quality assessment.

## 4.4 Quality appraisal

Since the integrative review consists of several different studies, the quality of those studies is reflected in the quality of the review. Using gray material can be justified. In any case, the quality of the studies to be included must be evaluated. (Booth et al., 2016; Remington, 2020, p 45-46; Vilkka, 2022, p. 92.) In this research, only studies judged to be of sufficiently high quality were used. This choice was made so that a picture of the phenomenon to be studied was made in light of high-quality data to get the most believable and reliable understanding.

Various criteria instruments have been developed for quality assessment. However, there is still no clear consensus on the evaluation of individual data from integrative studies (Hopia et al., 2016, p. 668; Remington, 2020, p. 53). In general, in evaluating the quality of studies is important to pay attention to validity, reliability, and applicability (Booth et al., 2016, p. 153-155). There are different checklists for evaluating the scientific quality of the data. However, because an integrative review includes a wide variety of sources, overly strict evaluation is not optimal (Whittemore & Knafl, 2005, p. 549-550).

In this research, the evaluation of the data was carried out by utilizing two different checklists. Research papers were evaluated using a checklist modified by Kangasniemi, Pakkanen, and Korhonen (2015), see TABLE 1. Other scientific papers were evaluated by using Joanna Briggs Institute's (JBI, n.d.) checklist for narrative text, see TABLE 2. The quality of the data was assessed individually at the stage when the studies had been selected based on their content. Three articles were rejected based on quality assessment. Except for one, the articles were peer-reviewed. However, the quality of the non-peer-reviewed paper was assessed as high quality.

TABLE 1 Quality evaluation, table 1

	Mwangi & King'ori, 2023	Raisa et al., 2023	Walker, 2022	Clark & Doryab, 2022	Ibiyemi et al., 2022	Manana et al., 2021	Ogunsile, 2021	Abubakari et al., 2021	Thompson et al., 2021	Rivera, 2017	Walus et al., 2016	McConnell, 2016	Bekalu & Eggermont, 2015	Rattani et al., 2015	Paukste & Harrish, 2015	Yoshida et al., 2013	Potente et al. 2013	Yoshida et al., 2012	Boustin-Foster et al., 2010	Lemieux et al., 2008	
<b>STUDY</b>	1	2	3	4	6	8	9	10	11	13	14	15	16	17	18	19	20	21	22	24	
<b>Aims and objectives clearly described</b>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<b>Study design adequately described</b>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<b>Research methods appropriate</b>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y
<b>Explicit theoretical framework</b>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<b>Limitations presented</b>	NR	Y	NR	Y	NR	Y	Y	NR	Y	Y	Y	Y	Y	NR	P	Y	Y	Y	Y	Y	Y
<b>Implications discussed</b>	Y	Y	Y	Y	Y	Y	Y	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<b>Peer-reviewed</b>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	NR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

**Quality evaluation of the studies selected for the review.**

(Kangasniemi, Pakkanen & Korhonen, 2015) and Peer-Reviewed box.

Quality appraisal criteria: Y = Yes, P = Poor, NR = Not reported



TABLE 2 Quality evaluation, table 2

	Appiah et.al., 2022	Benavides et.al., 2021	Jones, 2020	Bastien, 2009
<b>STUDY</b>	5	7	12	23
<b>Is the generator of the narrative a credible or appropriate source?</b>	Y	Y	Y	Y
<b>Is the relationship between the text and its context explained? (where, when, who with, how)</b>	Y	Y	Y	Y
<b>Does the narrative present the events using a logical sequence so the reader or listener can understand how it unfolds?</b>	Y	Y	Y	Y
<b>Do you, as reader or listener of the narrative, arrive at similar conclusions to those drawn by the narrator?</b>	Y	Y	Y	Y
<b>Do the conclusions flow from the narrative account?</b>	Y	Y	Y	Y
<b>Do you consider this account to be a narrative?</b>	Y	Y	Y	Y
<b>Peer-reviewed</b>	Y	Y	Y	Y

**Quality evaluation of the studies selected for the review.**

(JBI, Checklist for textual evidence: **Narrative**) and Peer-Reviewed box.

*Quality appraisal criteria: Y = Yes, N = No, U = Unclear, NA = Not applicable*

## 4.5 Analysis and synthesis

After the database has been evaluated, it is analyzed (e.g. Toronto, 2020, p. 7; Vilkkä, 2023, p. 41). The final data contained 24 articles. The analysis phase is started by organizing, coding, and categorizing the data through the creation of a review matrix (Dwyer, 2020, p. 58). A complete consensus on the method of analyzing the integrative review data has not yet been reached. The most commonly used methods have been constant comparison, content analysis, and thematic analysis. (Hopia et al., 2016, p. 666, 668; Dwyer, 2020, p. 64.) In this research, the data was analyzed by using thematic analysis. The advantage of thematic analysis is, for example, flexibility, the ability to draw together, and on the other hand, to take into account important differences in the key features emerging from the data. It also is well suited for a beginning researcher (Braun & Clarke, 2006, p. 97.) There are six phases of thematic analysis: “1) Familiarizing yourself with your data, 2) Generating initial codes, 3) Searching for themes, 4) Reviewing themes, 5) Defining and naming themes, and 6) Producing the report “(Braun and Clarke, 2006, p. 87).

In this research, the analysis phase already started in the content reading and evaluating phase. The research material was read through several times. In practice, the first notes (codes) were made of the data in Excel reflecting the review questions and the purpose and aim of the research. Coding started with colors. After that, matrixes were made for each review question separately using the understanding from Excel material. In the matrixes, each review question was broken down into smaller open questions. Themes began to take shape as the process progressed (see FIGURE 3). The detected codes were exported to Word and classified by theme. Synthesis can be implemented in different ways, for example, using alternative models or conceptual frameworks. (Torraco, 2005, p. 363.) The final thematization was structured by forming hierarchical diagrams (see FIGURE 4 (RQ1) and 6 (RQ3)) and (see FIGURE 5 (RQ2)).

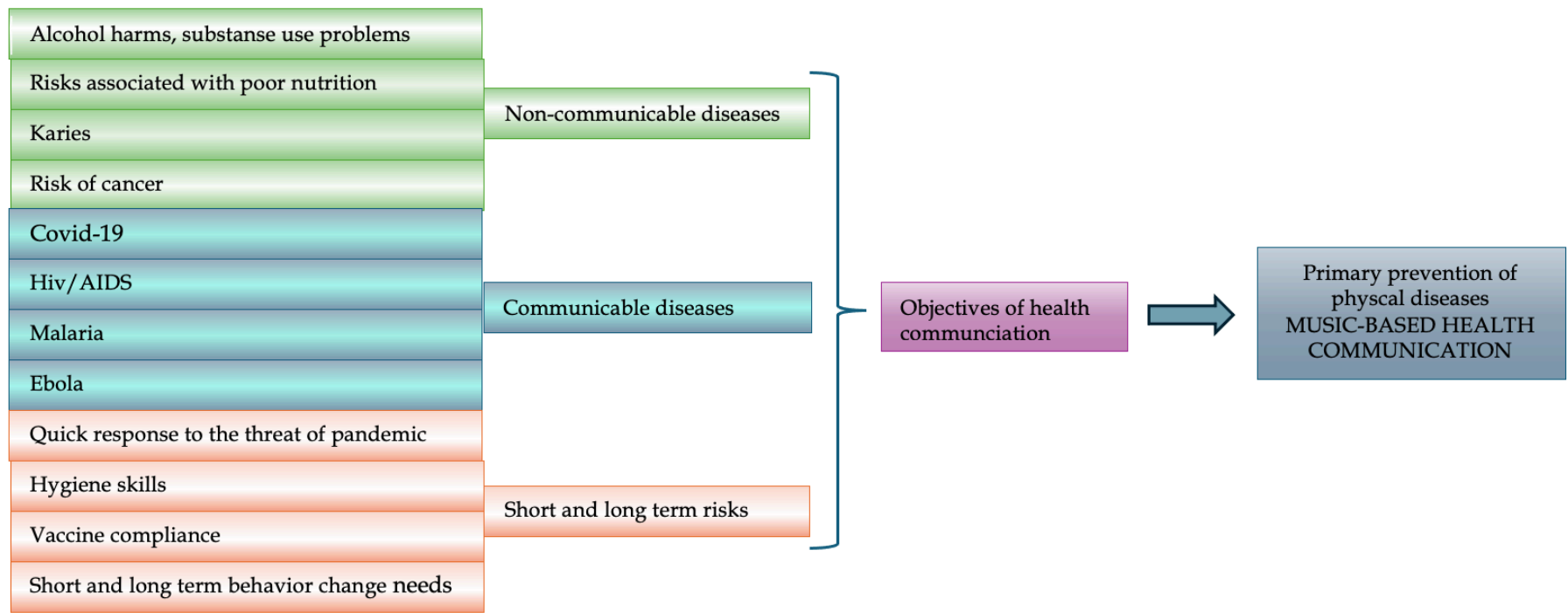


FIGURE 3 An Example of an Analysis

## 5 RESULTS

This chapter presents findings by research question. The research data reinforced the previous understanding that there is a lot of evidence for the use of music in primary preventive health promotion, specifically in the prevention of physical diseases. However, the effectiveness of the use of music has been studied empirically very little, and high-quality research is needed.

The research data consisted of 24 articles of which 13 were qualitative studies, two were quantitative studies, four were mixed methods studies and five were other scientific papers (See ANNEX 6) Most of the studies (13) were carried out in Africa (four in Nigeria, three in Ghana, two in South Africa and one each in Kenya, Ethiopia, Tanzania and Liberia). In addition, one perspective article contained research articles from several different countries, but not from the Nordic countries. The intervention example related to this article was implemented in Liberia and Guinea. Other articles of the research data were carried out in North America (four in the USA), in Asia (one in Bangladesh and two in Laos), two in Australia, and one in Europe (England). The quality of the articles was assessed as high quality. Primary preventive health promotion was approached through empirical designs, by analyzing the music and lyrics, describing interventions, and discussing the phenomenon.

In the results presented now and from now on, a term *health promoter* will be used. It means a person who provides health communication. In addition to a health promotion professional, the health promoter can be, for example, a musician who offers health information.

### 5.1 Music-based health communication promoting physical health and well-being at the level of primary prevention

The RQ1 was to study the phenomenon of primary preventive music-based health communication related to the prevention of physical diseases. This phenomenon did not come out clearly in earlier music-wellbeing frameworks. This study identified

several perspectives as evidence for the existence of the phenomenon (See FIGURE 4). These main themes were the needs of health communication, for which music has been used, different kinds of target groups, different goals for using music, different musical implementation methods, and agents creating health communication.

### **5.1.1 Objectives of health communication**

Music-based communication has been used for various health promotion needs. The most typical objective was the prevention of communicable diseases: HIV/AIDS (Lemieux et al., 2008; Bastien, 2009; Boutin-Foster et al., 2010; Yoshida et al., 2012; Bekalu & Eggermont, 2015; Rattani et al., 2015; Walker, 2022); COVID-19 (Jones, 2020; Abubakari et al., 2021; Thompson et al., 2021; Appiah et al., 2022; Mwangi & King'ori, 2023); Ebola (Rivera, 2017; Benavides et al., 2021) and malaria (Manana et al., 2021). Of these, previous research has focused especially on the prevention of HIV/AIDS and the most recent research is mainly on the prevention of COVID-19. Prevention of non-communicable diseases has been studied less. The subjects of primary preventive health communication has been alcohol, tobacco, drugs, and other intoxicants (Paukste & Harris, 2015; Walus et al., 2016); dietary habits (Ogunsile, 2021); dental health (Ibiyemi et al., 2022) and cancer (Potente et al., 2013; Raisa et al., 2023). The research data also showed the layout of short-term and long-term goals. The short-term goal of health communication was, for example, a quick response to the threat of the pandemic (Abubakari et al. 2021). The long-term goal was, for example, communication related to vaccines (Appiah et al., 2022).

### **5.1.2 Target groups**

Various groups emerged from the data that were the target of the health communication. These were people of different ages, relatives of the main group, minorities, and people who are experiencing health communication fatigue. In the different age groups, research focused on young people was particularly emphasized. None of the studies focused solely on the elderly. Raisa et. al. (2023) paid attention also to the relatives of the actual target group in health communication as a part of the intervention. Without the support of a spouse or mother-in-law, women would not have the opportunity to participate in a health event due to the lack of a ride or child care (Raisa et al. p. 261). Manana et al. (2021) studied the relevance of cultural song in community engagement and awareness-raising related to malaria prevention. There was no age limit defined, and the participants were between 18 and 78.

Minorities were also identified as the target group. The use of music in health communication has been studied among indigenous peoples (Abubakari et al., 2021). The research data also included health communication aimed at the disadvantaged,

for example, those for whom social resources and beliefs like taboos and myths are standing in the way of health communication (Raisa et al., 2023, p. 260-261). In addition to these, those who experience fatigue towards traditional health communication were identified from the data. This came up in the study related to HIV/AIDS communication done by Walker (2022).

### **5.1.3 Objectives of using music**

Different goals for using music were identified from the data. The research data of this literature emphasized the role of music as a work tool (Boutin-Foster et al., 2010; Bekalu & Eggermont, 2015; Walus et al., 2016; Rivera, 2017; Jones, 2020; Manana et al., 2021; Thompson et al. 2021; Appiah et al., 2022; Walker, 2022). Rivera (2017, p.69) suggests that in health communication, the more important function of the music is to convey the message, rather than aesthetics. Other reasons related to the use of music were simplifying the health message through music (Abubakari et al., 2021, p. 77; Mwangi & King'ori, 2023, p. 136); as a means of circumventing health communication fatigue (Walker 2022, p. 29) and paying attention to health protection in the current situation (Potente et al., 2013, p. 282). In addition to these, the research data revealed the role of music as an opener of the health communication conversation. This came up, for example, in the study of Boutin-Foster et al. (2010), where the young people participated in workshop-style work and had a guided discussion about hip-hop and rap music.

### **5.1.4 Methods of implementation**

Music-based health communication includes different ways of using music. In most of the studies, the method involved sensing the music by listening and looking. In some studies, a health communication activity was more participatory when existing music was analyzed (Boutin-Foster et al. 2010); or music was self-produced with the experts (McConnel, 2016; Paukste & Harrish, 2015). The most common ways were audio recordings (Lemieux et al., 2008; Yoshida et al. 2012; Bekalu & Eggermont, 2015, Rattani et al., 2015; Manana et al., 2021; Ibiyemi et al., 2022); music videos (Thompson et al. 2021; Walker, 2022; Mwangi & King'ori, 2023) and live performance (Abubakari et al. 2021; Raisa et al., 2023). The use of sonification (use of sound to convey information) (Walus et al., 2016; Clark & Doryab, 2022) and ambient loudspeakers (Potente et al., 2013) represented newer thinking. In addition to these, workshop working emerged from the data (Boutin-Foster et al., 2010; Paukste & Harrish, 2015).

Walus et. al. (2016) researched supplementing audiovisual risk information related to alcohol use with simple interactivity and audio (music and sonification). This is an example of an early study that did not yet offer significant results. The

intervention significantly improved alcohol knowledge and alcohol risk perception also in the group where no music and sonification was used. However, "the majority of participants indicated that the audio, music, and sonification helped to convey the information well". (Walus et al., 2016.) Clark and Doryab (2022) investigated the representation of people's health status through music. According to the researchers, the emotional connection created by music may help people better internalize their personal health promotion needs and help to change behavior. Clark and Doryab (2022) developed a personalized sonification model in their research and concluded that it is possible to present health information using personalized music models.

In Australia, health communication related to skin cancer prevention has been carried out using ambient loudspeakers. Pontente et al. (2013) studied a method where each hour, at the time of highest UV risk, the loudspeakers played *The Sun Sound* (short jingle and voiceover) reminding the target group to add sunscreen. This method representing an environmental strategy was found to be more effective in aquatic settings such as pools and beaches. An intercept survey found that more than a third of young people added sunscreen after hearing *The Sun Sound*. (Pontente et al. 2013.)

In the United States, Boutin-Foster et al. (2010) implemented health communication HIV/AIDS awareness and prevention through workshops. The intervention included five meetings and the objective was to study to learn listening to hip hop and rap music while being aware of its content. The workshop included, for example, teamwork and listening to and analyzing songs encouraging harmful health behavior. As a short-term result, the researchers found that the adolescents who were the target group liked this way of health communication. The intervention increased some of the adolescents' awareness regarding the content of the songs. (Boutin-Foster et al., 2010.) In the study by Paukste and Harrish (2015), a workshop related to the prevention of the use of alcohol, tobacco, and other drugs by young people was carried out. In this intervention, participants dealt with the topic area by developing a group-based rap performance together with rap artists, music producers, and promoters. In this study was found that for the majority (82%) of the participants, their perspectives had changed and the way of using music was attractive to young people. (Paukste & Harrish, 2015.)

### **5.1.5 Agents creating health communication**

Health promotion activities were carried out by various agents. Two main perspectives were identified from the research data: experts in different fields and agents of different ages. Typically, musicians from different backgrounds such as locals, celebrities/opinion leaders and other music professionals produced health-related content together with health professionals or organizations (Bastien, 2009; Yoshida et al., 2012; Bekalu & Eggermont, 2015; Paukste & Harrish, 2015; Rivera, 2017; Benavides et al.,

2021; Manana et al., 2021; Ogunsile, 2021; Thomson et al., 2021; Appiah et al., 2022; Ibiyemi et al. 2022; Raisa et al., 2023). These were seen as experts. The musical competence was not necessarily tied to educational background. The research's data revealed, for example, local, experienced, proficient music-based health communication agents with no formal education (Abubakari et. al., 2021, p. 68). In addition to actual experts, other agents who are central to the success of the intervention took part in health communication interventions. These included, for example, teachers (Lemieux et al., 2008; Boutin-Foster et al., 2010; Paukste & Harris, 2016; Ibiyemi et al., 2022). In any case, there is no one right way to create cooperation between agents. McConnell (2016, p. 138) highlights the importance of identifying the unique skills of health promoters for the implementation of health communication.

People of different ages can be suitable as performers of a music-based health message. One study brought up the age of the agent. Mwangi and King'ori (2023, p. 134-135) highlighted that the performer of the highly popular YouTube video (1,9 million views) was a teenager.



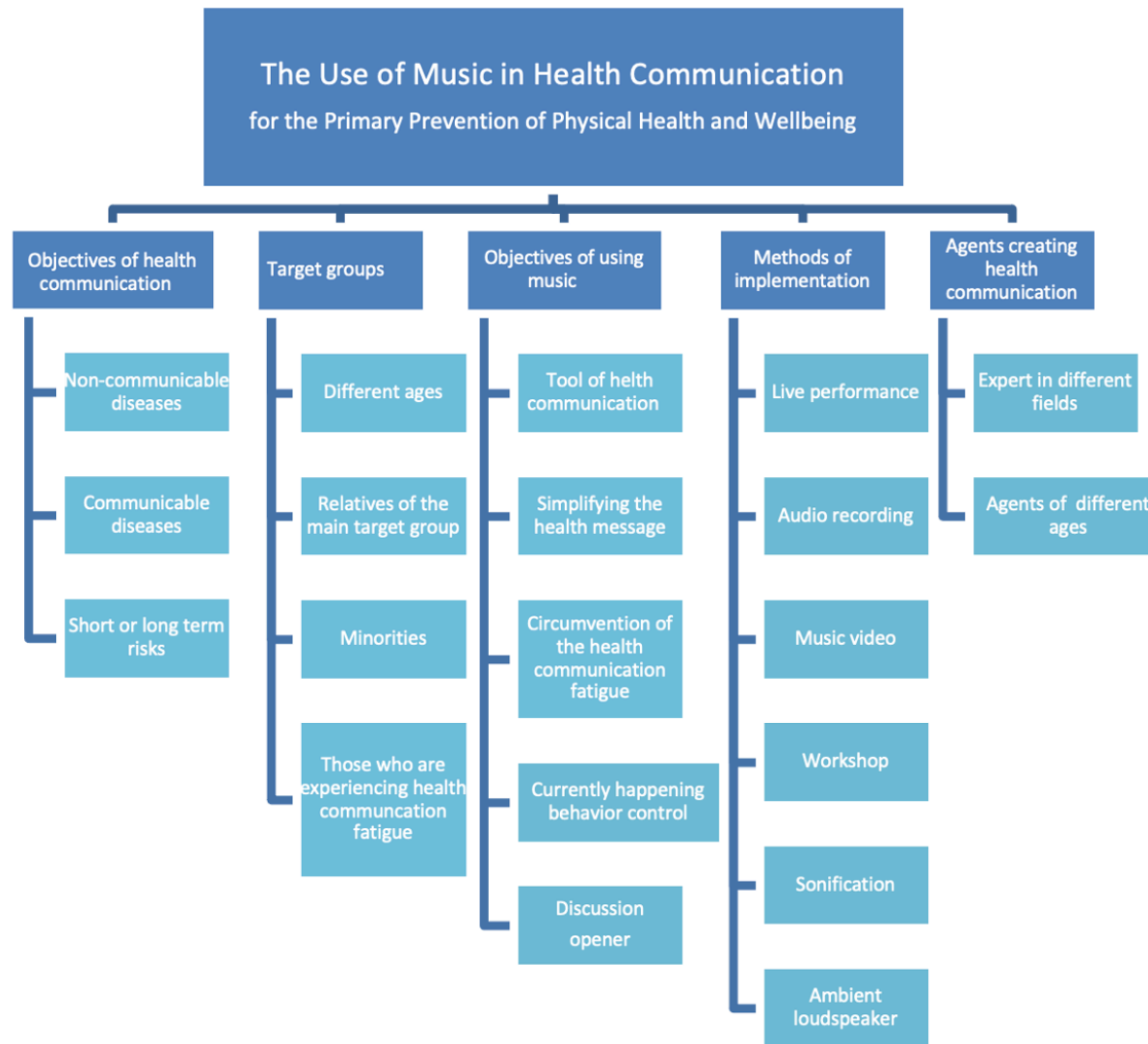


FIGURE 4 The Use of Music in Health Communication for the Primary Prevention of Physical Health and Wellbeing

## 5.2 Emotions in music-based health communication intervention

RQ 2 drew attention to the role of emotions in music-based health communication. During the data search phase, an additional search was made. However, this did not produce any new results. Emotions were brought up at some level, in 12 articles. In six articles (Begalú & Eggermont, 2015; Walus et al., 2016; Rivera, 2017; Jones, 2020; Manana et al., 2021; Mwangi & King'ori, 2023), emotions were mentioned as a background understanding, and this became clear by stating the matter in individual words. In four of the studies (Yoshida et al., 2012; Abubakari et al., 2021; Thompson et al., 2021; Clark & Doryab, 2022), the importance of emotions for music based-health communication was considered briefly. Only two of the studies (Yoshida et al., 2013; Walker, 2022) took a deeper look at emotions in music-based health communication, and only Walker's study focused on emotion-related research. Because the research data provided only scant information on this topic, no clear structure could be formed. The picture below visualizes the elements that seem to be important and probably interact with one another.

A funnel in the FIGURE 5 seeks to describe the intervention situation. It was identified from the data that in this interactive situation, the emotions of the recipient, the emotions of the health communication provider, and the emotions that are embedded in the health message influence each other. The musical emotion elements identified from the research data are depicted around the funnel. The data also revealed the influence of elements other than the music itself on the emotional musical experiences. Emotional experiences inside and outside the funnel mix inside the funnel to form emotions on many levels in music-based health communication. This in turn can lead to emotional commitment or emotional refusal. Next, I will go through the formation of this pattern in light of emerging information from the research data.

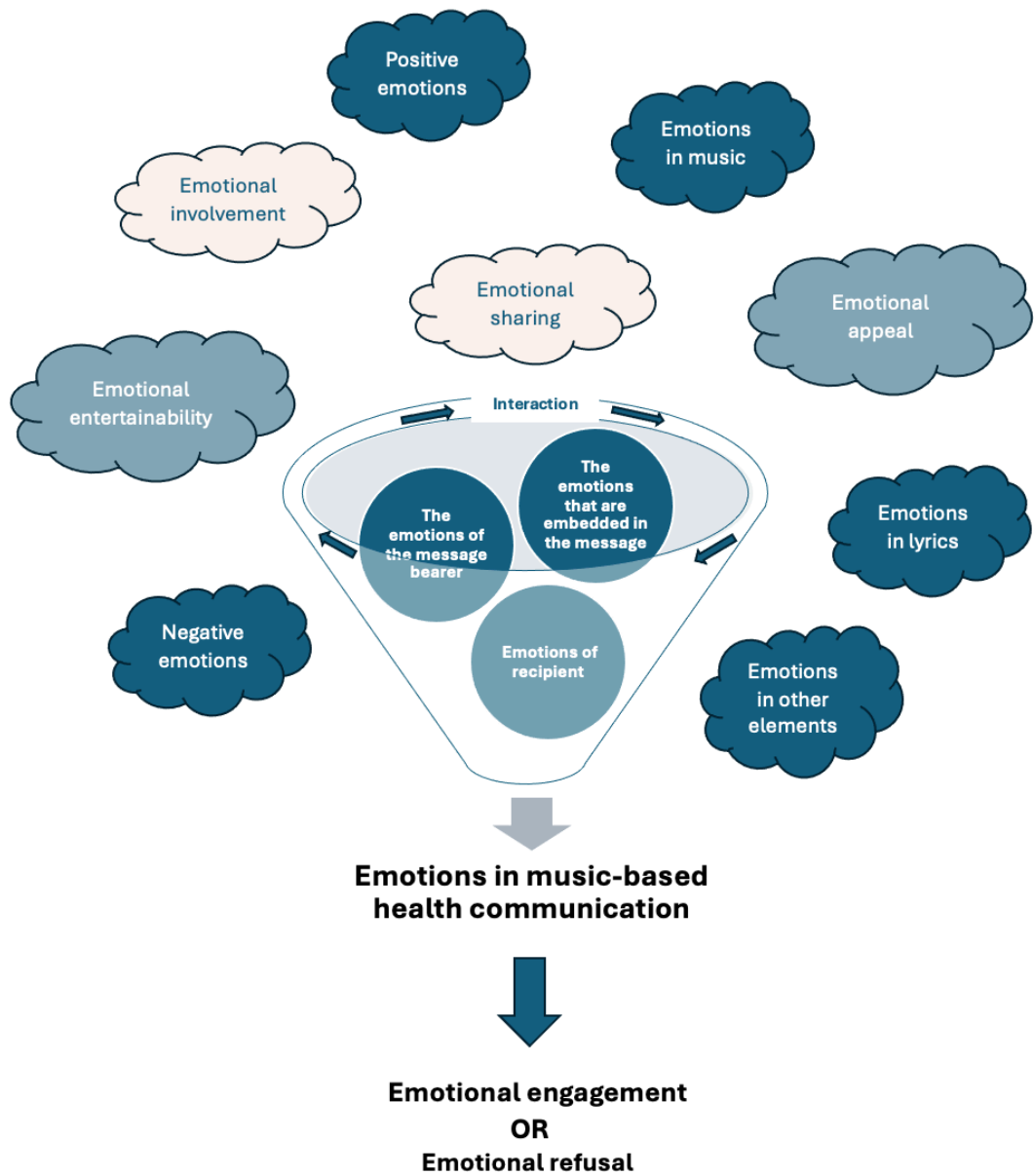


FIGURE 5 Emotions in Music-based Health Communication

In a health intervention, people interacting with each other meet from different starting points and roles. This was generally visible in the research data related to, for example, culture, know-how, and life situation. Abubakari et al. (2021, p. 70) brought up emotions as one element that can be given, received, exchanged, and expressed in music-based health communication.

Musical emotional appeal was identified in both the lyrics and music. Both negative and positive emotional arousal were used in the lyrics. For example, Thompson et al. (2021) identified emotional reactions as one of the content themes of the lyrics. The lyrics related to COVID-19 created a fearful depiction related to the seriousness of the disease and its societal consequences. These were meant to warn the music listener about the risks. (Thompson et al., 2021, p. 7, 9.) A song with a sad theme may prove to be the most popular. This was visible in the study of Mwangi and King'ori (2023) in which two sad and one happy songs were analyzed. The sad song was the most popular with 1,9 million views (Mwangi & King'ori, 2023).

The importance of experiencing positive emotions in music-based health communication emerged from the research data. Walker (2022, p. 29) noticed that experiencing empathy led to feelings of gratitude which led to the desire to stay health. On the other hand, Jones (2020) discussed in his essay the use of pandemic pop related to COVID-19 as a health communicational tool. He describes how the combination of new, humorous lyrics with well-known songs may offer an opportunity to position the health message in the middle ground between the aesthetics of music and the goals of communication. This may help to reach both the target audience and their health thinking and bring joy at the same time. (Jones 2020.) Abubakari et al. (2021, p. 71), on the other hand, described the usefulness of onomatopoeic words in arousing emotions in Kusaal music intervention.

There can be also emotions in other elements of music-based health intervention. Yoshida et al. (2012, p. 60) describe how music that is culturally close and suitable for one's own identity can create a strong emotional involvement.

The importance of musical elements as appealing emotions was recognized in the big picture (Rivera, 2017; Abubakari et al., 2021; Clark & Doryab 2022). Rivera (2017, p. 65) mentions that the style and genre of the song is related to the listener's emotional response. Clark and Doryab (2022), on the other hand, experimented with instruments and voice to create an emotional connection related to the presentation of personal health information. They used the term emotional energy in this context. They found that participants most strongly associated violin and voice with the arousal of emotional energy in this study. (Clark and Doryab, 2022, p. 19.)

Emotive music can trigger both emotional engagement and emotional refusal. The importance of finding the right balance, especially in the case of negative emotions emerged from the research data. Walker (2022, p. 29) found, that the highly emotive nature of health communication in the music video compelled participants to engage in following the content. In addition, his study indicated that awakening

emotions could help the health message stay in mind for a longer time (Walker, 2022, p. 30 ). On the other hand, in his study, Walker draws attention to situations when a campaign aimed at arousing negative emotions can at some point turn against itself. In his research, he found that using stereotypes in health communication can create negative associations in the target group. (Walker, 2022, p. 30 )

Musical emotions may play an important role in effective health communication. Clark and Doryab (2022, p. 24) suggest that the emotional connection to the health experience created through music can be more effective than traditional guidance. Walker (2022, p. 30) suggests that it may be useful to use highly emotive media to circumvent HIV/AIDS health communication fatigue.

### **5.3 Towards target effects in Nordic music-based health communication – learning points from the world**

Through RQ 3, the aim was to study which perspectives are central in planning music-based health communication content for the Nordic target group. Based on the theoretical background, it was already estimated that the amount of Nordic research data may remain small. However, several learning points from the world were identified (See FIGURE 6). These were customization, resources, quality, marketing, responsibility, and evaluation.

#### **5.3.1 Customization**

The research data clearly showed the importance of tailoring music-based health communication to suit the target group (e.g. Lemieux et al., 2008; Yoshida et al., 2012; Bekalu & Eggermont, 2015; Rattani, 2015; McConnell, 2016; Rivera, 2017; Manana et al., 2021; Ogunbile, 2021). In getting to know the target group, was used, for example, focus group interviews before the health intervention (Raisa et al., 2023, p. 261). Three main themes emerged related to customization: a cultural understanding (e.g. Lemieux et al. 2008; Yoshida et al., 2012; McConnell, 2016; Rivera, 2017; Manana et al., 2021; Ibiyemi et al., 2022); individual and community health needs and musical factors.

The importance of cultural understanding as a basis for understanding the ways of acting, thinking and values of the target group came out emphatically in numerous studies (Lemieux et al., 2008; Bastien, 2009; Yoshida et al., 2012; Rattani et al., 2015; McConnell, 2016; Rivera, 2017; Manana et al., 2021). For example, Bastien (2009, p. 1360) brings out the importance of cultural appropriateness, relevance, and engagement in music-based health communication. The topic was discussed in particular two

more specific sub-themes in the research data: social norms and values, and language. Appiah et al., for example, suggest that to increase the attractiveness of the intervention, it could be useful to adapt the instrumentation of the songs to the musical values popular with the target group (Appiah et al., 2022, p. 438). The theme of social norms and values can also be approached through, for example, cultural sensitivity. For example, Raisa et al. (2023, p.267) found that talking about the female anatomy is a culturally sensitive topic in Bangladesh. This understanding later guided the design of the music-based breast cancer intervention. The importance of the use of language close to the target group was mentioned in several studies (Abubakari, 2021; Thomson et al. 2021; Ibiyemi et al., 2022; Walker 2022; Mwangi & King'ori, 2023; Raisa et al., 2023). Cultural understanding also includes understanding not to make cultural assumptions. For example, at the young age group, the traditional Lam music did not meet everyone's music preferences (Yoshida et al., 2012).

It is essential to identify key individual and community health needs. Various identified needs for musical health communication have already been described in Chapter 5.1.1. When it comes to individual-oriented communication concerning community-oriented communication, McConnel (2016, p. 132) states that identification of the needs of the target group thinking is moving away from the individual approach to a culture-centered approach.

The third sub-theme was musical factors and two perspectives emerged: the music itself and the performer's skills. Many meanings related to music emerged from the research data. In general, the importance of lyrics and chorus (i.e. option to repeat a health message) in music emerged (Jones, 2020; Abubakari et al., 2021; Appiah et al., 2022). Also, for example, metaphors suitable for the cultural context are used in the lyrics (Bastien 2009; Begalu & Eggermont, 2015). Secondly, a music genre (Yoshida et al., 2012; Paukste & Harrish, 2015, McConnell, 2016, Walker, 2022); and performer that appeals to the target audience (Lemieux et al., 2008; Paukste & Harrish, 2015; Walker, 2022) can be used to engage the target group. The use of culturally relevant musical instruments was also brought up (Bekalu & Eggermont, 2015). The research data also revealed that an effort has been made to develop a framework for the evaluation of health communication music and that it can be useful when assessing the preferences of a certain target group. Yoshida et al. (2013) created the Scale for Evaluating Music for Health Promotion (SEMPH) for the people of Lao PDR. They found four factors: emotional involvement, message persuasion, cultural fitness, and musicality.

In music-based health communication, the health promoter uses their performance skills and information related to the need to promote health (Abubakari et al. 2021, p. 68). When it comes to performer's skills, in most studies, music-based health communication was presented carefully and pre-planned. However, flexibility and improvisation and its benefits also emerged from the research data. McConnel (2016, p. 136) describes Gambian's kanyeleng fertility society performers, whose flexible and spontaneous performance style is an important part of the kanyeleng genre. The other

example comes from Ghana where Googi performers created music-based health communication by improvising without rehearsal.

### 5.3.2 Resources

The research data showed the importance of resources in implementing music-based health communication. Two main themes were identified: cooperation and funding.

Cooperation plays a key role in the planning and implementation of music-based health communication. Three sub-themes were identified from the research data: cooperation between different professionals that are central to the intervention (e.g. Appiah et al., 2022; Thompson et al., 2021; Ibiyemi et al., 2022); social interaction between health promoters and the target group (McConnel, 2016); and cooperation with decision makers such as politicians, organizations and state (Rattani et. al., 2015; Appiah et al., 2022; Rivera, 2017).

Agents creating health communication is already described in chapter 5.1.5, and the importance of cooperation in terms of the quality of music-based health communication is described in the following chapter 5.3.3. For example, Ibiyemi et. al. (2022, p. 870) bring out the importance of smooth and effective communication between different agents when describing the learning points of their health communication song-writing process. In turn, McConnell (2016, p. 138) and Benavides et. al. (2021, p. 7) pay attention to the importance of long-term collaborative relationships. The emergence of social interaction between health promoters and target groups is important. According to McConnel (2016, p. 137), musical genres may help build trust. While researching the kanyeleng genre she found, among other things, that the flexibility and spontaneity of music performance specific to the kanyeleng promoted social interaction and participation between target group and health promoter (McConnel 2016, p. 136). On the other hand, health promoters should face the target group from the same level. For example, Walker (2022, p. 25) drew attention that personal experience of being judgmental or looked down upon in health communication inhibited engagement with musical health communication. Intensifying cooperation between the implementer of music-based health communication and decision-makers was seen as important (Rattani et. al., 2015; Appiah et al., 2022; Rivera, 2017). Both support from politicians and politics reinforcing the message of the intervention, as well as increased understanding of policymakers about the use of music as an opportunity to promote health, came to the fore.

It became apparent from the research data that the implementation of music-based health communication is not free, and agents are entitled to financial compensation (McConnel, 2016; Benavides et al., 2021; Abubakari et al., 2021). Singer of Kusaas people, for example, "solicit for funds during their performance since that is their trade" (Abudakari et al. 2021, p. 68). Money is also needed for marketing, for

example (Benavides et al., 2021). Benavides et. al. (2021, p. 2, 5) state that cultural differences and incompatible expectations between different agents can create misunderstandings. This can be seen, for example, in different assessments of what the musicians think is financially reasonable compensation for the work and on the other hand, what it is realistic for the researcher to receive funding for. (Benavides et. al. 2021, p. 2, 5.) However, using music is relatively inexpensive since it can be used to reach a large number of people (Lemieux et al. 2008 p. 355; Bastien 2009, p. 1360). Bastien (2009, p. 1360) suggests that using music can be a useful addition in situations where there are few health care resources available for traditional guidance.

### 5.3.3 Quality

Two main themes were identified from the research data that have a central impact on the quality of music-based health communication. These were the quality of health communication and the quality of music. The sub-themes of quality of health communication were identified as the professionalism of health experts and using evidence-based resources. The sub-themes of quality of music were identified as musical competence and music research. The quality of music-based health communication is built on the quality of both health communication and music.

As already described in the results of this study, the competence created as a result of collaboration with key players is an important quality builder. Benavides et al. (2021, p. 5), for example, state that through open dialogue between different experts, the risk of misunderstandings and unwanted consequences can be reduced. High-quality music-based health communication can also be implemented using written evidence-based resources. For example, music-based health communication carried out by the indigenous population in Ghana was implemented by using WHO's COVID-19 guidelines as a source of right health information (Abubakari et al. 2021, p. 70). In South Africa, the local Mankandi group composed and wrote song related to malaria prevention using a pamphlet they received (Manana et al., 2021, p. 3). In the planning of health interventions, applicable frameworks and theories produced in different disciplines have also been utilized. These were, for example, the Information, motivation, and behavioral skills model (IBM) defined by Fisher & Fisher 1992, 2000 as cited by Lemieux et al., (2008); and the Extended Parallel Process Model (EPPM) defined by Witte, 1992, as cited Bekalu & Eggermont (2015).

The quality of the music and its production was seen as important (Manana et al., 2021; Walker 2022). The role of music research was seen as important, which will be returned later in this study (see chapter 5.3.5).



### 5.3.4 Marketing

The research data brought up the importance of marketing for reaching the target audience. Two main themes came up: marketing for the different groups and utilization of different methods. Four sub-themes related to different target groups were the actual target group, different professionals, celebrities, and politicians.

In all empirical studies, the actual target group was defined for music-based health communication. This target group can be reached through different professionals, celebrities, and politicians. The closest to the target group are those responsible for health communication, i.e. various music and health experts. These have already been described earlier in the results. As one concrete example, Appiah et al. (2022, p. 438) highlighted the convergence of health experts with musicians and songwriters. The research data also revealed the usefulness of celebrities among the target group as a message carrier (Lemieux et al., 2008; Bastien, 2009; Paukste & Harrish 2015; Benvides et al. 2021 Walker, 2022; Mwangi & King'ori, 2023). Mwangi and King'ori (2023, p. 132) connect this to people's desire to identify with the person important to them. The use of celebrities can help maximize target group engagement with health communication (Walker 2022, p. 29). The research data also brought up the importance of support from the state and politicians (Rattani et al., 2015; Rivera, 2017; Appiah et al., 2022).

It is important to identify culturally relevant media channels (Appiah et al., 2022). Social media such as YouTube (Appiah et al., 2022; Mwangi & King'ori 2023); WhatsApp (Appiah et al., 2022), and Facebook (Appiah et al., 2022) came up. The utilization of channels where conspiracy theories and misinformation spread were also brought up. Radio was used population if connecting to the internet was uncertain. (Appiah et al., 2022.) Other ways were to bring the musical health event to a public place (Abubakari et al. 2021; Raisa et al., 2023) and influence behaviors within a context (Potente et al., 2013).

### 5.3.5 Responsibility

The research data showed that it is important that the agents who create and convey health messages understand their responsibilities. For example, Rivera (2017, p. 75) points out that music represents more than just a message. In addition to providing appropriate health knowledge, cultural sensitivity and the responsibility related to the behavior of health promoters came up. Walker (2020, p. 26) recognized in a study conducted in South Africa that the use of racial stereotypes can alienate from the health messages. The study by Paukste & Harrish (2015, p. 26) drew attention to the fact that role models important to young people sometimes also used inappropriate language and conversational topics. On the other hand, in the intervention studied by Lemieux

et. al. (2008, p. 351) exemplary behavior was required from selected musically skilled opinion leaders.

### **5.3.6 Evaluation**

As for the assessment of effectiveness, the researchers agreed on the need for further research and empirical evidence, taking into account different perspectives (e.g. Bastien, 2009, Boutin-Foster et al., 2010; Walus et al., 2016; Benavides et al. 2021; Ogunsile, 2021; Thompson et al. 2021; Appiah et al., 2022; Raisa et al., 2023). High-quality research data is scarce, and it has mainly been produced in developing countries. The development of evaluation methods was also seen as important (e.g. Raisa et al., 2023). Raisa et al. (2023, p. 267) state that measurement instruments should be culturally justified and should pay attention to internal and ecological validity in the research process. The scientific papers included in both process evaluations (e.g. Lemieux et al., 2008; Boutin-Foster et al., 2010, Potente et al., 2013; Paukste & Harrish 2015; Raisa et al., 2023); and results evaluation (e.g. Lemieux et al., 2008; Boutin-Foster et al., 2010; Paukste & Harrish 2015; Ogunsile, 2021; Walker, 2022) of interventions. One measure of effectiveness was the popularity the music received on, for example, Youtube (Jones, 2020; Mwangi & King'ori 2023) or among the locals (Abudakari, 2021).

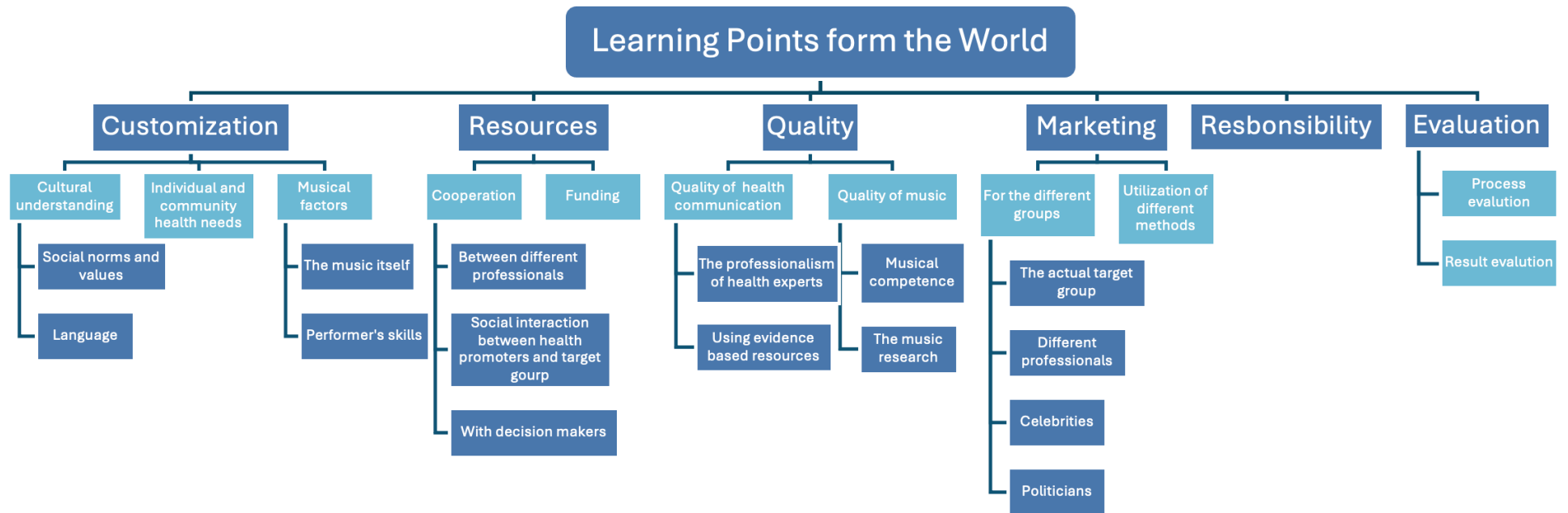


FIGURE 6 Learning Points from the World

## 6 DISCUSSION

This thesis aimed to produce knowledge about primary preventive musical health promotion and its development so that it can be used in the future when planning different methods to promote the health of the population. Primary prevention was approached from the perspective of physical disease prevention. However, the study took into account the point of view that mental health might affect physical health choices and emotional responses to music. The topic of this research perspective was approached through communication because it is a key means that combines music and primary preventive health promotion. There were three review questions. The RQ1 looked at the current status of the phenomenon because the phenomenon was not clearly visible in previous music-wellbeing frameworks. The RQ 1 was: What is currently known about using music in health communication for the primary prevention of physical health and wellbeing? The RQ 2 examined the consideration of emotions in previous studies, as emotions are related to effective health communication, and on the other hand, music can trigger emotions. The RQ 2 was: By what mechanisms could musical emotion influence health choices and behavior? The RQ 3 looked to the future because the theoretical background of this study brought out the need to pay attention to the Nordic perspective as well. The RQ 3 was: What kind of musical health communication could be useful in thinking about preventive health choices made by Nordic people?

The results of this study suggest that the use of music at the primary preventive level of preventive health promotion exists as a broad, versatile phenomenon. Music is used a lot in health communication when preventing physical diseases. In light of previous evidence, it was known that using music in health communication can be effective (Cournoyer Lemaire, 2020, p. 479; Sheffield & Irons, 2021, p. 288). The results of this study confirmed that the research of the phenomenon is minimal, especially outside the developing countries. Nordic research on the topic is missing. In this study, I identified five themes related to the phenomenon: objectives of music-based health communication, target groups, objectives of using music, musical methods of implementation, and agents creating communication. This study also examined the role of emotions in music-based health communication. I noticed that emotions are versatily present in health communication based on music. However, little is still

known about how emotions work in music-based health communication. Also, several learning points from the world were identified when thinking about music-based health interventions. I found six themes: customization, resources, quality, marketing, responsibility, and evaluation. In this discussion, I reflect on the results of this integrative literature and bring them to the Nordic context. This study brought out several research needs, which I present while reflecting on the results. I will also discuss about the quality and ethics of this study. Finally, I present the conclusion and my recommendations.

## **6.1 Use of music in primary prevention of physical diseases - prospects**

This study highlighted a perspective that has received little attention in previous music wellbeing research. The use of music has only been studied a little in welfare states and the Nordic research is completely missing. In addition, the use of music in the primary prevention of non-communicable physical diseases has been studied only in individual studies. In general, music-based health communication has been used especially in countries where the appreciation of music is strong and oral communication is important. These create a needs for further research. As for the target groups, so far the research has focused especially on young people. The elderly were not a clear single target group in any study. However, music-based health communication suitable for the elderly group could be, for example, communication-related to fall prevention.

The research data revealed the importance of the family as an object of health communication in addition to the actual target group. This perspective is worthy of note because the lifestyle of family and loved ones plays an important role in the health thinking and behavior of individuals. For example, it is written in the Finnish law that Maternity and child health clinics must promote the wellbeing of the whole family and, for example, promote the healthy lifestyles of the family. (Terveydenhuoltolaki 1326/2010) The music itself can enable a communal experience (Tarr et al., 2014).

Music can touch different target groups. This can be an important point of view where music can fight inequality in health promotion. For example, minorities emerged from the research data. In the future, music could be used more, for example, for people with special needs. Good results have already been obtained, for example, from the use of music for the visually impaired, in guiding brushing their teeth (i.e. implementation of health-supporting behavior) (Shetty et al., 2013).

This study showed that music offers many good methods of implementing health communication from listening to music, to workshop-style activities and sonification.

In the future, one important research target could be, for example, the effects of singing songs with health messages in different age groups. It is known that by singing it is possible to process and experience, for example, emotions (e.g. Zhang, 2021).

As for the agents creating health communication, it is important to identify unique competence that does not look at the age of the health promoter. The research data emphasized the importance of cooperation. However, even one person can have expertise in both music and health promotion. What is central is the quality of expertise, which can still be strengthened through cooperation. In addition, in particular celebrities as health promoters were seen as one important possible agent.

In this study, special attention was paid to one key factor connecting music and health communication, i.e. emotions. Considering the importance that emotions have in relation to both music and effective health communication, the role of emotions in music-based health communication rarely appears in studies dealing with the topic. Given the scarcity of information, it is not yet clear how emotions work in music-based health communication. However, the identified elements in this study seem to be important and probably interact with one another. Despite the scarce research data, it is safe to state that music and health intervention situation create a motley array of different emotions when humanity meets the world. In the future, it is important to study this perspective to increase understanding of the roles of different musical emotions in health communication. It is also important to create the topic's own theory base.

Emotions may be a key perspective that can be used to increase the effectiveness of music-based health communication. It is also generally known that musical emotions can positively effect, for example, the ability to remember matters (see. e.g Jäncke, 2008; Purnell-Webb & Speelman, 2008) There is also a strong connection between emotions and learning (e.g. Hallam, 2010; Tyng et al. 2017). Music makes it possible to experience different emotions personally and bodily, while at the same time creating a safe environment for experiencing emotions (Saarikallio, 2019). The research data revealed the appeal of sad music to the listener. Based on the studies is known that the feeling of being moved and the feeling of sadness caused by music can feel pleasant (Vuokoski & Eerola, 2017; Schubert, 2024). Emotions attached to music can arise from many things. Emotions in other elements in music-based health communication situation is also important to recognize and investigate. These themes include, for example, the spoken part of the intervention, cultural factors, and symbols which are also generally visible in the research data.

In his study, Walker (2022) raised an important point of view on the role of emotions in circumventing health communication fatigue. I suggest that this fatigue can be compared to the indifference to taking care of one's own health seen, for example, in the Nordic countries. It can be cautiously stated that a musical emotional reaction can make you stop and make it possible to listen to a health message.

RQ 3 reviewed what health communication could be in the Nordic countries. Since no Nordic information was found, the Nordic perspective is now outlined in the light

of information from the world. Even though people come from different backgrounds and cultures, the research data gave a glimpse that behind all of this is ultimately personhood and the similar styles basic needs and developmental tasks.

When identified learning points (i.e. importance customization, resources, quality, marketing, responsibility, and evaluation) are projected onto the health intervention models described in the theoretical background of this study, it can be understood that when music is used in primary preventive health communication of physical diseases, music should permeate the entire intervention process (see FIGURE 7 below). The picture below aims to describe especially the relationships between the components of the intervention process. It also shows a process-like flow from the planning to implementation, evaluation, and development. The inner circle (*Identifying the target group*) reflects a person who plays the main role in the intervention, i.e. target group. The circle next to this (*Justification of the intervention/choice of change mechanism*) is related to the critical choices of the intervention. The closeness of these two circles describes that the justifications and choices for the intervention arise from the target group and choices surround and affect the target group. The testing, implementation, and evaluation of the intervention are built around these (*Testing and implementation of intervention* and *Process and result evaluation*) Perspectives that emerged in the results of this study offer suggestions for considering music in the different phases of the primary preventive music-based health communication intervention.

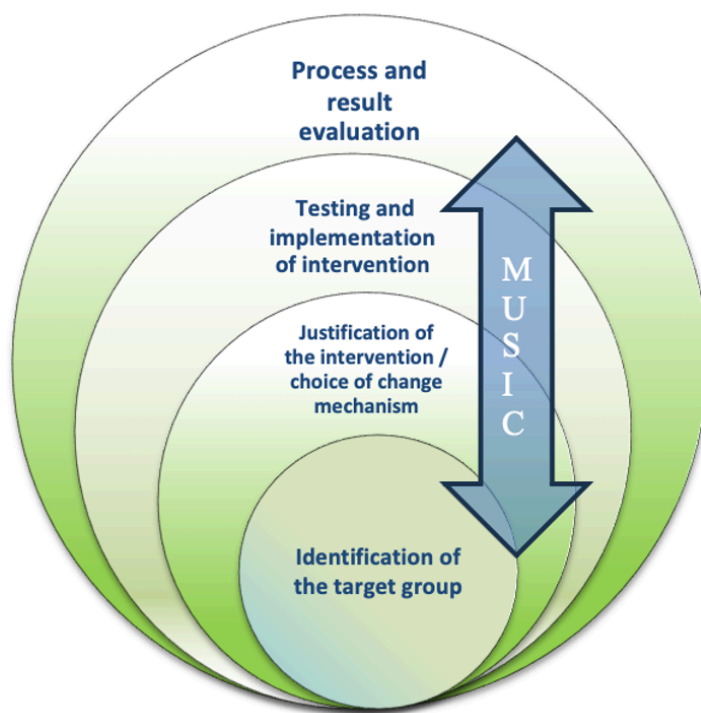


FIGURE 7 Music as a part of Health Communication Intervention

When this process is viewed from a Nordic perspective, it is important to recognize, for whom music-based health communications are offered, why, and how. The research results particularly emphasized the importance of tailoring music-based health communication and understanding the culture that affects the individual and the community. Based on this study, sufficient resources, i.e. tangible and intangible capital including cooperation, are important. A very relevant aspect was also the quality of the music-based health intervention. According to research, it consists of both the quality of health communication and the quality of music. When it comes to marketing, it is important to target marketing to different professional groups and decision-makers in addition to the actual target group. For example, politicians use a lot of authority and the support received from them is important. It is also important to remember the responsibility of the health promoter. In addition to the responsibility perspectives that emerged from the research data (i.e. providing appropriate health knowledge, cultural sensitivity, and behavior of health promoters), recipients of health communication must know how to get support if the need for support arises. Testing, evaluation, and development of the intervention is an integral part of the intervention process so that the methods can develop and the effectiveness can be evaluated.

The cultures can create health promotion needs. However, it also creates opportunities to meet these challenges. Based on the research data, music is a versatile resource and opportunity that should not be left unexploited in the Nordic Countries. Increasing multiculturalism in Nordic countries creates challenges for accessible health communication. In health promotion activities, this means, for example, that health communication is genuinely adapted to suit the target culture (Castaneda & Rask, 2022, p.146). Considering that there are people living in the Nordic Countries for whom music-based health communication is a familiar way to receive health communication, I suggest, strengthening the practical knowledge and research of music-based health communication in the Nordic countries and more widely. On the other hand, for example, research focusing on non-communicable diseases in the Nordic countries could offer new perspectives also to countries and continents where research has previously focused on preventing infectious diseases. Non-communicable diseases are becoming more common in, for example, Africa (Gouda et al., 2019, p. 1375).

Music is an opportunity when people and communities are supported towards a more wellbeing life. The music-based approach offers versatile options for customizing health communication. This study focused on investigating the use of music in health communication before manifestation of physical diseases. However, based on the results, this study also encourages to examine the use of health communication at other levels of prevention, for example, in efforts to increase compliance with disease treatment, also without forgetting the possibilities of health communication in strengthening mental health. Music and health belong to everyone.



## 6.2 Quality and Ethics of the research

Every study has methodological weaknesses (Booth et al., 2016, p. 148; Toronto & Remington, 2020, p. 80). The quality of the integrative literature review is formed by the quality of the research data used (internal validity) and from the evaluation of the implemented literature review (external validity) (Booth et al., 2016, p. 142). The most critical steps of this study were literature search, material selection, and evaluation of the papers.

An integrative review is recommended to be carried out by at least two researchers (Toronto, 2020, p. 3). The fact that only one person did this study lowers the quality of the research. To ensure the best possible quality and considering the contribution of one researcher, each work step was done twice. To ensure the transparency and clarity of the research process and this report, I took notes throughout the process. The research process is reported accurately and transparently. In this study, Grammarly, an app that uses artificial intelligence, was used to check spelling.

The search and selection phase of this research data was done as carefully as possible so that the relevant papers were taken into account. However, relevant literature may have not been found, if the researcher has not found, for example, the keywords that the author of the original researcher thought the research could be found (Lawless & Foster 2020, p. 36). On the other hand, the success of the selection of research data was improved by my expertise in health sciences. One critical point was that I had to define the concepts and research papers to be included in the primary preventive perspective because the perspective had not been defined before in this context. I also had to delimit, for example, what kind of activity that uses music was included and what was not. The research data proved to be appropriate and brought out versatile different perspectives of the phenomenon. If the inclusion criteria had been more strictly limited, for example geographically, the understanding of the phenomenon would have remained scarcer. It can be considered that the data search was successful, however, taking into account that the second search round did not produce new results. The data was reviewed from newer to older. However, there may have been some overlap between the examined research papers, although efforts were made to take this into account.

In this research, the quality of the included data was assessed using appropriate assessment tools, and the studies were evaluated individually. All but one of the included papers were peer-reviewed. The non-peer-reviewed paper was evaluated as high quality. This study focused on examining the phenomenon in general. The information produced in the research can be used when planning different methods to

promote the health of the population. However, the research information of this study cannot be considered generalizable.

The formation of the theoretical background of the study was guided by my pre-understanding of the phenomenon. Objectivity was sought during the data search, evaluation, and results processing phase because possible preconceived notions can hinder findings that are relevant to the phenomenon. On the other hand, the reliability of the work was improved by my previous understanding of the phenomenon as a creator and implementer of health communication music in the Nordic context.

During the research process, research ethical principles were followed. Since the research focuses on studies that have already been done, no prior ethical evaluation was needed. The study followed the instructions of the scientific community, honesty and care. This study was a discussion of the research papers. The work of researchers was respected, and the references were made appropriately. This study is published following scientific principles. (Tutkimuseettinen neuvottelukunta (TENK), 2023.)

### 6.3 Conclusion and Recommendations

This study was important to do because the perspective of this research is missing from existing previous music-wellbeing frameworks and research knowledge on the subject is still limited. The research produced information that is especially useful for musicology and health science. Based on this study is known that A) Music-based primary prevention of physical diseases exists as a versatile and broad phenomenon. B) Many different emotions arise and are present in music-based health communication. However, little is still known about how emotions work in these interventions. C) When music is used in primary preventive health communication of physical diseases, music should permeate the entire intervention process. My recommendations are the following:

- 1) The existence of the phenomenon should be better taken into account in musicology (recognition, understanding, researching, and application) and music wellbeing frameworks because the primary prevention of physical diseases is a key factor affecting and creating wellbeing of people.

- 2) The concept of prevention is commonly used in musicology. However, when means primary preventive health promotion, a more precise international definition of the concept clarifies the research field and understanding of the phenomenon. The matter is relevant, because, for example, the word *prevention* has different meanings in

different languages. This study showed that in musicology, the concept of *primary prevention* fits well to describe a situation where a disease is prevented before it occurs.

3) It is important to bring the study of the topic into the Nordic context.

4) The role of musical emotions in music-based health communication should be investigated.

5) When music is part of a health intervention, it should be considered at every stage of the intervention.

## REFERENCES

- \*Abubakari, H., Assem, I. S., & Amankwah, A. S. (2021). Framing of COVID-19 safety protocols in Kusaal musical health communication: Language and literary analysis. *Language & Communication*, 81, 64–80. <https://doi.org/10.1016/j.langcom.2021.09.002>
- Amu, M. (2001). Music and health messages. *Research Review of the Institute of African Studies*, 17(1), 91–95. <https://doi.org/10.4314/rrias.v17i1.22903>
- \*Appiah, B., Walia, B., & Nam, S. H. (2022). Promoting COVID-19 vaccination through music and drama – Lessons from early phase of the pandemic. *British Journal of Clinical Pharmacology*, 88(2), 437–440. <https://doi.org/10.1111/bcp.15027>
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037/0003-066X.55.5.469>
- Aunila, S. (n.d.). Kesäkumibiisejä. Yleisradio, Eläväarkisto. <https://yle.fi/aihe/kategoria/elava-arkisto/kesakumibiiseja>
- Bahri, S., Lee, K. S., Adenan, M. A., Murugiah, M. K., Khan, T. M., Neoh, C. F., & Long, C. M. (2016). Dikir Farmasi: Folk songs for health education. *Arts & Health*, 8(3), 272–278. <https://doi.org/10.1080/17533015.2016.1182195>
- Baltazar, M. (2019). Musical affect regulation in adolescents: A conceptual model. In *Handbook of Music, Adolescents, and Wellbeing* (pp. 65-74). Oxford University Press.
- Bartholomew Eldridge, L. K., Markham, C. M., Ruitter, R. A. C., Fernández, M. E., Kok, G., & Parcel, G. S. (2016). *Planning health promotion programs: An Intervention Mapping approach* (4th ed.). Hoboken, NJ: Wiley.
- \*Bastien, S. (2009). Reflecting and shaping the discourse: The role of music in AIDS communication in Tanzania. *Social Science & Medicine*, 68(7), 1357–1360. <https://doi.org/10.1016/j.socscimed.2009.01.030>
- Baumeister, R. F., Vohs, K. D., Nathan DeWall, C., & Liqing Zhang. (2007). How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and Social Psychology Review*, 11(2), 167–203. <https://doi.org/10.1177/1088868307301033>
- Bearfield, D.A. & Warren, S.E. (2008). Writing a Literature Review: The Art of Scientific Literature. In K. Yang & G.J. Miller (Eds.) *Handbook of Research Methods in Public Administration* (pp. 61-72). Boca Raton: CRC Press.
- Beckford, J. (1998). *Quality: a critical introduction*. London: Routledge.
- \*Bekalu, M. A., & Eggermont, S. (2015). Aligning hiv/aids communication with the oral tradition of africans: A theory-based content analysis of songs' potential in prevention efforts. *Health Communication*, 30(5), 441–450. <https://doi.org/10.1080/10410236.2013.867004>

- \*Benavides, J. A., Caparrós, C., Da Silva, R. M., Lembo, T., Tem Dia, P., Hampson, K., & Dos Santos, F. (2021). The power of music to prevent and control emerging infectious diseases. *Frontiers in Medicine*, 8, 756152. <https://doi.org/10.3389/fmed.2021.756152>
- Bonde, L.O. & Theorell, T. (2018). Introduction. In L.O. Bonde & T. Theorell. (Ed.) *Music and Public Health: A Nordic perspective* (pp. 1-12). Springer International Publishing.
- Bonde, L.O. (2020). Music and health promotion in Danish/Nordic hospitals – who and how? An essay. In L.O. Bonde & K. Johansson (Eds.), *Music in paediatric hospitals. Nordic perspectives*. (pp. 149-169). Norges musikkhøgskole.
- Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review* (Second edition). Sage.
- \*Boutin-Foster, C., McLaughlin, N., Gray, A., Ogedegbe, A., Hageman, I., Knowlton, C., Rodriguez, A., & Beeder, A. (2010). Reducing hiv and aids through prevention (Rhap): A theoretically based approach for teaching hiv prevention to adolescents through an exploration of popular music. *Journal of Urban Health*, 87(3), 440–451. <https://doi.org/10.1007/s11524-010-9435-7>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Burke, S. M., & Orlick, T. (2003). Mental strategies of elite high altitude climbers: Overcoming adversity on mount everest. *Journal of Human Performance in Extreme Environments*, 7(2), 15-22. <https://doi.org/10.7771/2327-2937.1029>
- Castaneda, A. & Rask, S. (2022). Näkökulmia kulttuurisesta moninaisuudesta ja maahanmuutosta terveyden edistämisessä. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveyden edistäminen*, (pp. 141-147). Kustannus Oy Duodecim.
- Chou, W.S., Blanch-Hartigan, D. & Thai, C.L. (2017). The role of communication in cancer prevention and care. In C. Parvanta, D.E. Nelson & N.R. Harner (Eds.), *Public Health Communication: Critical Tools and Strategies* 1<sup>st</sup> Edition, (pp. 1050-1100). Jones & Bartlett Learning.
- \*Clark, M., & Doryab, A. (2022). Sounds of health: Using personalized sonification models to communicate health information. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 6(4), 1–31. <https://doi.org/10.1145/3570346>
- Cooper, H. (1989). *Synthesizing Research: A Guide for Literature Reviews*, 3<sup>rd</sup> edition. Sage, Thousand Oaks, CA.
- Cournoyer Lemaire, E. (2020). Extraordinary times call for extraordinary measures: The use of music to communicate public health recommendations against the spread of COVID-19. *Canadian Journal of Public Health*, 111(4), 477–479. <https://doi.org/10.17269/s41997-020-00379-2>

- Dickson, G.T, & Schubert, E. (2019). How does music aid sleep? Literature review. *Sleep Medicine*, 63, 142-150. <https://doi.org/10.1016/j.sleep.2019.05.016>
- Duodecim Käypä Hoito (2024, March 18). Tyypin 2 diabetes. Suomalaisen Lääkäriseuran Duodecimin, Suomen Sisätautilääkärien yhdistyksen ja Diabetesliiton Lääkärineuvoston asettama työryhmä. Helsinki: Suomalainen Lääkäriseura Duodecim. <https://www.kaypahoito.fi/hoi50056#K1>
- Duodecim Terveyskirjasto (2016, August 18). Profylaksi. Lääketieteen sanasto. <https://www.terveyskirjasto.fi/ltt02736>
- Duodecim Terveyskirjasto (2023, January 5). Primaarinen ehkäisy. Lääketieteen sanasto. <https://www.terveyskirjasto.fi/ltt02724>
- Dwyer, P.A. (2020). Analysis and Synthesis. In C.E. Toronto & R. Remington (Eds.). *A Step-by-Step Guide to Conducting an Integrative Review*. (pp. 57-70). Springer.
- Earle, S. (2007). Exploring health. In S. Earle (Eds.), *Theory and research in promoting public health* (pp. 37-65). SAGE ; In association with The Open University.
- Eerola, T. & Saarikallio, S. (2010). Musiikki ja tunteet. In J. Louhivuori & S. Saarikallio (Eds.) *Musiikkipsykologia / monograph*. (pp. 259-278). Bookwell Oy.
- Eerola, T., & Vuoskoski, J. K. (2013). A review of music and emotion studies: Approaches, emotion models, and stimuli. *Music Perception*, 30(3), 307-340. <https://doi.org/10.1525/mp.2012.30.3.307>
- Engels, R. C. M. E., Slettenhaar, G., Ter Bogt, T., & Scholte, R. H. J. (2011). Effect of alcohol references in music on alcohol consumption in public drinking places: Alcohol references in lyrics. *The American Journal on Addictions*, 20(6), 530-534. <https://doi.org/10.1111/j.1521-0391.2011.00182.x>
- EuroHealthNet (2023, September 23). Defining EU health priorities post 2024 elections. <https://eurohealthnet.eu/publication/defining-eu-health-priorities-post-2024-elections/>
- Fancourt, D., & Finn, S. (2019). *What is the evidence on the role of the arts in improving health and well-being?: A scoping review*. WHO Regional Office for Europe.
- Finnish institute for health and welfare (THL). (2019, November 8), Yleistietoa kansantaudeista. <https://thl.fi/fi/web/kansantaudit/yleistietoa-kansantaudeista>
- Finnish institute for health and welfare (THL). (2022a, May 4), *Hyvinvointi*. <https://thl.fi/fi/web/hyvinvointi-ja-terveyserot/eriarvoisuus/hyvinvointi>
- Finnish institute for health and welfare (THL). (2022b, May 4). *Keskeisiä käsitteitä*. <https://thl.fi/fi/web/hyvinvointi-ja-terveyserot/eriarvoisuus/keskeisia-kasitteita>
- Finnish institute for health and welfare (THL). (2022c, May 2). THL:n sairastavuusindeksi 2019. <https://thl.fi/fi/tilastot-ja-data/tilastot-aiheittain/sairastavuus-ja-tapaturmat/thl-n-sairastavuusindeksi>
- Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS risk behavior. *Psychological Bulletin*, 111, 455-474.

- Fisher, J. D., & Fisher, W. A. (2000). Theoretical approaches to individual level change in HIV risk behavior. In J. L. Peterson & R. J. DiClemente (Eds.), *Handbook of HIV prevention* (pp. 3–55). New York: Kluwer Academic/Plenum Press Publishers.
- Gall Myrick, J. (2015). *The Role of Emotions in Preventative Health Communication*. Lexington Books.
- Gallopel-Morvan, K., & Moodie, C. (2017). The Continuing Presence of Tobacco and Alcohol Products in Media That Target Young People: A Commentary on Russell et al. (2017). *Journal of Studies on Alcohol and Drugs*, 78(5), 684–685. <https://doi.org/10.15288/jsad.2017.78.684>
- Gfeller, K. (1988). Musical components and styles preferred by young adults for aerobic fitness activities. *Journal of Music Therapy*, 25(1), 28–43. <https://doi.org/10.1093/jmt/25.1.28>
- Gouda, H. N., Charlson, F., Sorsdahl, K., Ahmadzada, S., Ferrari, A. J., Erskine, H., Leung, J., Santamauro, D., Lund, C., Aminde, L. N., Mayosi, B. M., Kengne, A. P., Harris, M., Achoki, T., Wiysonge, C. S., Stein, D. J., & Whiteford, H. (2019). Burden of non-communicable diseases in sub-Saharan Africa, 1990-2017: results from the Global Burden of Disease Study 2017. *The Lancet. Global health*, 7(10), e1375–e1387. [https://doi.org/10.1016/S2214-109X\(19\)30374-2](https://doi.org/10.1016/S2214-109X(19)30374-2)
- Green, J., Cross, R., Woodall, J. & Tones, K. (2019). *Health Promotion: Planning and Strategies* (4th ed). Sage.
- Hallam, S. (2010). Music education: The Role of Affect. In P.N. Juslin (Eds.), *Handbook of Music and Emotion* (pp. 790-817). Oxford University Press. <https://doi.org.ezproxy.jyu.fi/10.1093/acprof:oso/9780199230143.003.0028>
- Hardcastle, S. J., Hancox, J., Hattar, A., Maxwell-Smith, C., Thøgersen-Ntoumani, C., & Hagger, M. S. (2015). Motivating the unmotivated: How can health behavior be changed in those unwilling to change? *Frontiers in Psychology*, 6, 835-835. <https://doi.org/10.3389/fpsyg.2015.00835>
- Hirsjärvi, S., Remes, P., Sajavaara, P. (2013). *Tutki ja kirjoita*. (15.-17. painos) Tammi.
- Huttunen, J. (2020, March 5). Mitä terveys on. Lääkärikirja Duodecim. <https://www.terveyskirjasto.fi/dlk00903>
- Holody, K. J., Anderson, C., Craig, C., & Flynn, M. (2016). “Drunk in love”: The portrayal of risk behavior in music lyrics. *Journal of Health Communication*, 21(10), 1098–1106. <https://doi.org/10.1080/10810730.2016.1222032>
- Hopia H., Latvala, E. & Liimatainen, L. (2016). Reviewing the methodology of an integrative review. *Scandinavian journal of Caring Sciences* 30(4), 622-69
- \*Ibiyemi, O., Lawal, F., Osuh, M., Owoaje, T., Idiga, E., Fagbule, O., & Ijarogbe, O. (2022). Developing an oral hygiene education song for children and teenagers in nigeria. *International Dental Journal*, 72(6), 866–871. <https://doi.org/10.1016/j.identj.2022.06.008>



- \*Jones, M. J. (2020). How to have humor in an epidemic: Musicking, pandemic palimpsests, and public health pedagogy in the age of covid-19. *Americas: A Hemispheric Music Journal*, 29(1), 90–98. <https://doi.org/10.1353/ame.2020.0003>
- Joanna Briggs Institute (JBI). (n.d.). Critical appraisal tools. <https://jbi.global/critical-appraisal-tools>
- Juslin, P. N. (2013). From everyday emotions to aesthetic emotions: Towards a unified theory of musical emotions. *Physics of Life Reviews*, 10(3), 235–266. <https://doi.org/10.1016/j.plrev.2013.05.008>
- Juslin, P. N., & Västfjäll, D. (2008). Emotional responses to music: The need to consider underlying mechanisms. *Behavioral and Brain Sciences*, 31(5), 559–575. <https://doi.org/10.1017/S0140525X08005293>
- Juslin, P.N. & Sloboda, J.A. (2010a). The Past, Present, and Emotion Research. In P.N. Juslin (ed.), *Handbook of Music and Emotion* (pp. 933–955). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199230143.003.0033>
- Juslin, P.N. & Sloboda, J.A. (2010b) At the Interface Between in the Inner and Outer World: Psychological Perspectives. In P.N. Juslin (toim.), *Handbook of Music and Emotion* (pp. 73-98). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199230143.003.0004>
- Jyväskylän yliopisto (2023). Tutkimus musiikin, kulttuurin ja taiteen tutkimuksen laitoksella. <https://www.jyu.fi/fi/hytk/mutku/tutkimus>.
- Jäncke, L. (2008). Music, memory and emotion. *Journal of Biology*, 7(6), 21. <https://doi.org/10.1186/jbiol82>
- Järvi, U. (2022). Terveysviestintä on yhteispeliä. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveysten edistäminen*, (pp. 319-324). Kustannus Oy Duodecim.
- Kangasniemi, M., Pakkanen, P., & Korhonen, A. (2015). Professional ethics in nursing: An integrative review. *Journal of Advanced Nursing*, 71(8), 1744–1757. <https://doi.org/10.1111/jan.12619>
- Karvonen, S., Kestilä, L. & Saikkonen (2022), P. Johdanto. In S. Karvonen, L. Kestilä & P. Saikkonen (Eds.), *Suomalaisten hyvinvointi 2022*. Finnish institute for health and welfare (pp. 9-17). Terveysten ja hyvinvoinnin laitos. <https://urn.fi/URN:ISBN:978-952-343-996-2>
- Kinnunen, M. & Konttinen, H. (2022). Yksilötason terveyskäyttäytymistä määrittäviä tekijöitä. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveysten edistäminen* (1th Eds.) (pp. 92-97). Kustannus Oy Duodecim.
- Kivelä, P. (2021, August 12). HIV-infektio ja AIDS. Lääkärikirja Duodecim. <https://www.terveyskirjasto.fi/dlk01190>
- Koelsch, S., & Stegemann, T. (2012). The brain and positive biological effects in healthy and clinical populations. In R. A. R. MacDonald, G. Kreutz, & L. Mitchell (Eds.), *Music, health, and wellbeing* (pp. 436–456). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199586974.003.0029>



- Konttinen, H. (2022). Psykososiaaliset tekijät terveyden tukena. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveyden edistäminen* (1th Eds.) (pp. 99-105). Kustannus Oy Duodecim.
- Kopisto, M. & Kaukonen, A. & Johansson, C. (1979). Popsi popsi porkkanaa. Laki holhoustoimesta 442/1999 (1999, April 1). Finlex. <https://www.finlex.fi/fi/laki/ajantasa/1999/19990442#P2>
- Laki korkeakouluopiskelijoiden opiskeluterveydenhuollosta 695/2019. (2019, May 17). Finlex. <https://www.finlex.fi/fi/laki/alkup/2019/20190695>
- Lallukka, T. & Rahkonen, O. (2022). Terveyden sosiaaliset tekijät ja eriarvoisuus. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveyden edistäminen* (1th ed.) (pp. 125- 133). Kustannus Oy Duodecim.
- Lawless, J. & Foster, M. (2020). Searching systematically and comprehensively. In C.E. Toronto & R. Remington (Eds.). *A Step-by-Step Guide to Conducting an Integrative Review* (pp. 21-44). Springer.
- \*Lemieux, A. F., Fisher, J. D., & Pratto, F. (2008). A music-based HIV prevention intervention for urban adolescents. *Health Psychology, 27*(3), 349–357. <https://doi.org/10.1037/0278-6133.27.3.349>
- Lingham, J., & Theorell, T. (2009). Self-selected “favourite” stimulative and sedative music listening – how does familiar and preferred music listening affect the body? *Nordic Journal of Music Therapy, 18*(2), 150–166. <https://doi.org/10.1080/08098130903062363>
- MacDonald, R. A. R. (2013). Music, health, and well-being: A review. *International Journal of Qualitative Studies on Health and Well-Being, 8*(1), 20635.
- Manderbacka, K., Lindell, E., Suomela, T., Lumme, S., Koskinen, S., Martelin, T. & Parikka, S. (2022). Sosiaalinen asema ja menetetyt elinvuodet 2017-2019. In S. Karvonen, L. Kestilä & P. Saikkonen (Eds.), *Suomalaisten hyvinvointi 2022. Terveyden ja hyvinvoinninlaitos* (pp. 39-53). Terveyden ja hyvinvoinnin laitos. <https://urn.fi/URN:ISBN:978-952-343-996-2>
- Metropolia AMK, (2020). Lasten rokotuskirja 2019. <https://www.metropolia.fi/fi/tutkimus-kehitys-ja-innovaatiot/julkaisut/lasten-rokotuskirja>.
- Meyers, C.K. (2012). Influences on Music Preference Formation. *PURE Insights: Vol.1: Iss 1, Article 7,* 31-34. [https://www.researchgate.net/publication/239522710\\_Influences\\_on\\_Music\\_Preference\\_Formation](https://www.researchgate.net/publication/239522710_Influences_on_Music_Preference_Formation)
- Hargreaves, D.J. & MacDonald, R., & Miell, D. (2005). How do people communication using music. In D. Miell, R. MacDonald, D.J. Hargreaves (Eds.), *Musical communication*, (pp. 1-26). Oxford University press.
- \*Manana, P. N., Jewett, S., Zikhali, J., Dlamini, D., Mabaso, N., Mlambo, Z., Ngobese, R., & Munhenga, G. (2021). “Maskandi experience”: Exploring the use of a cultural song for community engagement in preparation for a pilot Sterile Insect

- Technique release programme for malaria vector control in KwaZulu-Natal Province, South Africa 2019. *Malaria Journal*, 20(1), 204. <https://doi.org/10.1186/s12936-021-03736-9>
- \*McConnell, B. B. (2016). Music and health communication in The Gambia: A social capital approach. *Social Science & Medicine*, 169, 132–140. <https://doi.org/10.1016/j.socscimed.2016.09.028>
- Ministry of Social Affairs and Health (STM) (n.d.). Terveysten ja hyvinvoinnin edistäminen kannattaa. <https://stm.fi/terveyden-ja-hyvinvoinnin-edistaminen-kannattaa>
- Morrison, F. P., Kukafka, R., & Johnson, S. B. (2005). Analyzing the structure and content of public health messages. *AMIA ... Annual Symposium Proceedings. AMIA Symposium, 2005*, 540–544.
- \*Mwangi, S. W., & King'ori, M. E. (2023). Framing of COVID-19 messages in Kenyan pop culture: A semiotic analysis of selected pop songs. *Journal of Communication and Media Research*, 15(1), 130-137. [https://www.researchgate.net/publication/370400281\\_Framing\\_of\\_COVID-19\\_messages\\_in\\_Kenyan\\_pop\\_culture\\_A\\_semiotic\\_analysis\\_of\\_selected\\_pop\\_songs](https://www.researchgate.net/publication/370400281_Framing_of_COVID-19_messages_in_Kenyan_pop_culture_A_semiotic_analysis_of_selected_pop_songs)
- Nordic Co-operation (n.d.a). Social policy and welfare. <https://www.norden.org/en/information/social-policy-and-welfare>
- Nordic Co-operation (n.d.b). Nordic health co-operation. <https://www.norden.org/en/information/nordic-health-co-operation>
- Nummenmaa, L. (2019). *Tunne-kartasto - Kuinka tunteet tekevät meistä ihmisiä*. Kustannusosakeyhtiö. Tammi.
- \*Ogunsile, S. E. (2021). Effectiveness of music in enhancing nutrition education outcomes among adolescents. *Journal of Nutrition Education and Behavior*, 53(3), 204–210. <https://doi.org/10.1016/j.jneb.2020.11.001>
- Partanen, H. (2012). *Musiikki ja laululyriikka terveystieteen välittäjänä - Jos välitän-konsertti työikäiselle kainuulaiselle*. Thesis. Kajaani University of Applied Sciences. <https://urn.fi/URN:NBN:fi:amk-201301231661>.
- Partanen, H. & Oikarinen, A. (2017). Musiikin hyödyntäminen terveystieteen välittäjänä: Jos välitän – konsertti. In M.L. Punta-Saastamoinen (Eds.), *Yhdessä kohti älykästä hoitotyötä*, (pp. 37-41). Kajaanin ammattikorkeakoulun julkaisusarja B. Raportteja ja selvityksiä 44.
- Parvanta, C. (2017). Introduction to Public Health Communication. In C. Parvanta, D.E. Nelson & N.R. Harner (Eds.), *Public Health Communication: Critical Tools and Strategies* 1<sup>st</sup> Edition, (pp. 63-102). Jones & Bartlett Learning.
- Patja, K. (2022a). Terveysten edistämisen määritelmät. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveysten edistäminen*, (pp. 12-18). Kustannus Oy Duodecim.
- Patja, K. (2022b). Mitä on terveys? In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveysten edistäminen*, (pp. 28-30). Kustannus Oy Duodecim.

- Patja, K. (2022c). Elintavat ja terveyst. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveyden edistäminen*, (pp. 86-91). Kustannus Oy Duodecim.
- Patja, K. & Laisi, J. (2022). Planetaarinen terveyden edistäminen. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveyden edistäminen*, (pp. 412-426). Kustannus Oy Duodecim.
- \*Paukste, E., & Harris, N. (2015). Using rap music to promote adolescent health: Pilot study of VoxBox. *Health Promotion Journal of Australia*, 26(1), 24–29. <https://doi.org/10.1071/HE14054>
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
- Peltola, H.R., Saarikallio, S. & Eerola, T. (2022). Musiikki ja tunteet. In J. Louhivuori, S. Saarikallio & P. Toiviainen (Eds.) *Musiikkipsykologia / monograph*, 2. revised edition, (pp. 369-397). Eino Roiha-säätiö.
- Peltola, H.-R., & Vuoskoski, J. K. (2022). “I hate this part right here”: Embodied, subjective experiences of listening to aversive music. *Psychology of Music*, 50(1), 159–174. <https://doi.org/10.1177/0305735620988596>
- Pietilä, A.M. & Terkamo-Moisio, A. (2019). Terveyden edistämisen monet tasot. A.M. Pietilä & A. Terkamo moisio (Eds.), In *Näkökulmia terveyteen ja sen edistämiseen* (pp. 19-23). Publications of the University of Eastern Finland General series No. 26.
- \*Potente, S., Rock, V., McIver, J., Williams, M., Magee, C., & Chapman, K. (2013). Fighting skin cancer with a musical sound: The innovative Australian sun sound campaign. *Social Marketing Quarterly*, 19(4), 279–289. <https://doi.org/10.1177/1524500413506583>
- Primack, B. A., Nuzzo, E., Rice, K. R., & Sargent, J. D. (2012). Alcohol brand appearances in US popular music. *Addiction*, 107(3), 557–566. <https://doi.org/10.1111/j.1360-0443.2011.03649.x>
- Pulkkinen, L. (2023). Aikuisuus. In L. Pulkkinen, T. Ahonen & I. Ruoppila (Eds.), *Ihmisen psykologinen kehitys*, chapter 5. PS-kustannus.
- Purnell-Webb, P., & Spielman, C. P. (2008). Effects of music on memory for text. *Perceptual and Motor Skills*, 106(3), 927–957. <https://doi.org/10.2466/pms.106.3.927-957>
- \*Raisa, A., Roberto, A. J., Love, R. R., Steiness, H. L. S., Salim, R., & Krieger, J. L. (2023). Pot song as a novel cancer communication intervention: Lessons learned from developing, implementing, and evaluating a culturally grounded intervention for breast cancer education in rural Bangladesh. *Journal of Cancer Education*, 38(1), 260–273. <https://doi.org/10.1007/s13187-021-02111-1>
- Rantala, A. (2005). Kirurginen mikrobilääkeprofylaksi: kenelle, milloin ja miten? *Läketieteellinen Aikakauskirja Duodecim* 121(15): 1676-8. <https://www.duodecimlehti.fi/duo95137>

- Rantala, E. & Mäki, P. (2022). Terveyskäyttäytymiseen vaikuttavat tekijät elinympäristössä. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveysten edistäminen*, (pp.106-115). Kustannus Oy Duodecim.
- Rath, J. M., Dimaya, B., O'Connor, K. M., Kreslake, J. M., Vallone, D. M., & Hair, E. C. (2023). Content analysis of tobacco imagery in popular music Videos, 2018–2021. *Preventive Medicine Reports*, 33, 102188. <https://doi.org/10.1016/j.pmedr.2023.102188>
- \*Rattani, A., Syed, R. H., & Sugarman, J. (2015). HIV prevention and hip hop: *What's the spin?* *Music and Medicine*, 7(1), 32–45.
- Remington, R. (2020). Quality Appraisal. In C.E. Toronto & R. Remington (Eds.). *A Step-by-Step Guide to Conducting an Integrative Review* (pp. 45-56). Springer.
- \*Rivera, M. (2017). Music, media, and the ethnopoetics of two ebola songs in liberia. *Africa Today*, 63(3), 63. <https://doi.org/10.2979/africatoday.63.3.05>
- Ryynänen, O.P. (2019). Säätääkö ennaltaehkäisy? In A. Pietilä & A. Terkamo-Moisio, (Eds.), *Näkökulmia terveyteen ja sen edistämiseen* (pp. 113-121). Publications of the University of Eastern Finland.
- Saarikallio, S. (2010). Musiikin tunnemerkit arkielämässä. In J. Louhivuori & S. Saarikallio (Eds.) *Musiikkipsykologia / monograph*. (pp. 279-293) Bookwell Oy.
- Saarikallio, S. (2017). Music and health: Physical, mental, and emotional. In R. Ashley & R. Timmers (Eds.), *The Routledge Companion to Music Cognition* (pp. 75-88). Routledge.
- Saarikallio, S. (2019). Access-awareness-agency (Aaa) model of music-based social-emotional competence(Musec). *Music & Science*, 2, 205920431881542. <https://doi.org/10.1177/2059204318815421>
- Samdal, G. B., Eide, G. E., Barth, T., Williams, G., & Meland, E. (2017). Effective behaviour change techniques for physical activity and healthy eating in overweight and obese adults; systematic review and meta-regression analyses. *International Journal of Behavioral Nutrition and Physical Activity*, 14(1), 42. <https://doi.org/10.1186/s12966-017-0494-y>
- Smith, P.G., Morrow, R.H. & Ross, D.A. (2015). *Field Trials of Health Interventions: A Toolbox*. 3<sup>rd</sup> edition. Oxford University Press. <https://www.ncbi.nlm.nih.gov/books/NBK305514/>
- Sheffield, D., & Irons, J. Y. (2021). Songs for health education and promotion: A systematic review with recommendations. *Public Health*, 198, 280–289. <https://doi.org/10.1016/j.puhe.2021.07.020>
- Shetty, V., Hegde, A., Varghese, E., & Shetty, V. (2013). A novel music based tooth brushing system for blind children. *Journal of Clinical Pediatric Dentistry*, 37(3), 251–256. <https://doi.org/10.17796/jcpd.37.3.28v62k5114659g62>
- Schubert, E. (2024). Liking music with and without sadness: Testing the direct effect hypothesis of pleasurable negative emotion. *PLOS ONE*, 19(4), e0299115. <https://doi.org/10.1371/journal.pone.0299115>

- Sloane, K., Wilson, N., & Imlach Gunasekara, F. (2013). A content analysis of the portrayal of alcohol in televised music videos in New Zealand: Changes over time. *Drug and Alcohol Review*, 32(1), 47–52. <https://doi.org/10.1111/j.1465-3362.2012.00477.x>
- Sonke, J. & Pesata, V.L. (2015). The arts and health messaging: Exploring the evidence and lessons from the 2014 Ebola outbreak. *BMJ Outcomes*, 1, 36–41.
- Stegemann, T., Geretsegger, M., Phan Quoc, E., Riedl, H., & Smetana, M. (2019). Music therapy and other music-based interventions in pediatric health care: An overview. *Medicines*, 6(1), 25. <https://doi.org/10.3390/medicines6010025>
- Stige, B. (2012). Health Musicking: A Perspective on Music and Health as Action and Performance. In R. MacDonald, G. Kreutz and L. Mitchell (Eds.), *Music, health and well-being*, (pp. 183–195). Oxford Academic.
- Särkämö, T., Tervaniemi, M., Laitinen, S., Numminen, A., Kurki, M., Johnson, J. K., & Rantanen, P. (2014). Cognitive, emotional, and social benefits of regular musical activities in early dementia: Randomized controlled study. *The Gerontologist*, 54(4), 634–650. <https://doi.org/10.1093/geront/gnt100>
- Tan, S.-L., Pfordresher, P., & Harré, R. (2010). *Psychology of music: From sound to significance*. Psychology Press.
- Tarr, B., Launay, J., & Dunbar, R. I. (2014). Music and social bonding: “self-other” merging and neurohormonal mechanisms. *Frontiers in psychology*, 5, 103498.
- \*Thompson, R. G. A., Nutor, J. J., & Johnson, J. K. (2021). Communicating awareness about covid-19 through songs: An example from Ghana. *Frontiers in Public Health*, 8, 607830. <https://doi.org/10.3389/fpubh.2020.607830>
- Tilastokeskus (2024, January 25). Maahanmuuttojen määrä ennätysuuri Suomessa vuonna 2023. <https://www.stat.fi/julkaisu/clmixlq2e5fnt0bw60d412t7g>
- Teixeira, P. J., Carraça, E. V., Markland, D., Silva, M. N., & Ryan, R. M. (2012). Exercise, physical activity, and self-determination theory: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 9(1), 78. <https://doi.org/10.1186/1479-5868-9-78>
- Tutkimuseettinen neuvottelukunta (TENK) (2023). *Hyvä tieteellinen käytäntö ja sen loukkausepäilyjen käsitteleminen Suomessa*. Tutkimuseettisen neuvottelukunnan julkaisuja 2/2023. [https://tenk.fi/sites/default/files/2023-03/HTK-ohje\\_2023.pdf](https://tenk.fi/sites/default/files/2023-03/HTK-ohje_2023.pdf)
- Tervonen, K. (2023, August 19). *Music listening in Finland 2023 – How people listen music in Finland*. IFPI Finland ry and Teosto ry. <https://ifpi.fi/app/uploads/2023/10/MUSIIKINKUUNTELU-SUOMESSA-2020.pdf>
- Terveydenhuoltolaki 1326/2010 (2011, May 1). Finlex. <https://www.finlex.fi/fi/laki/smur/2010/20101326>

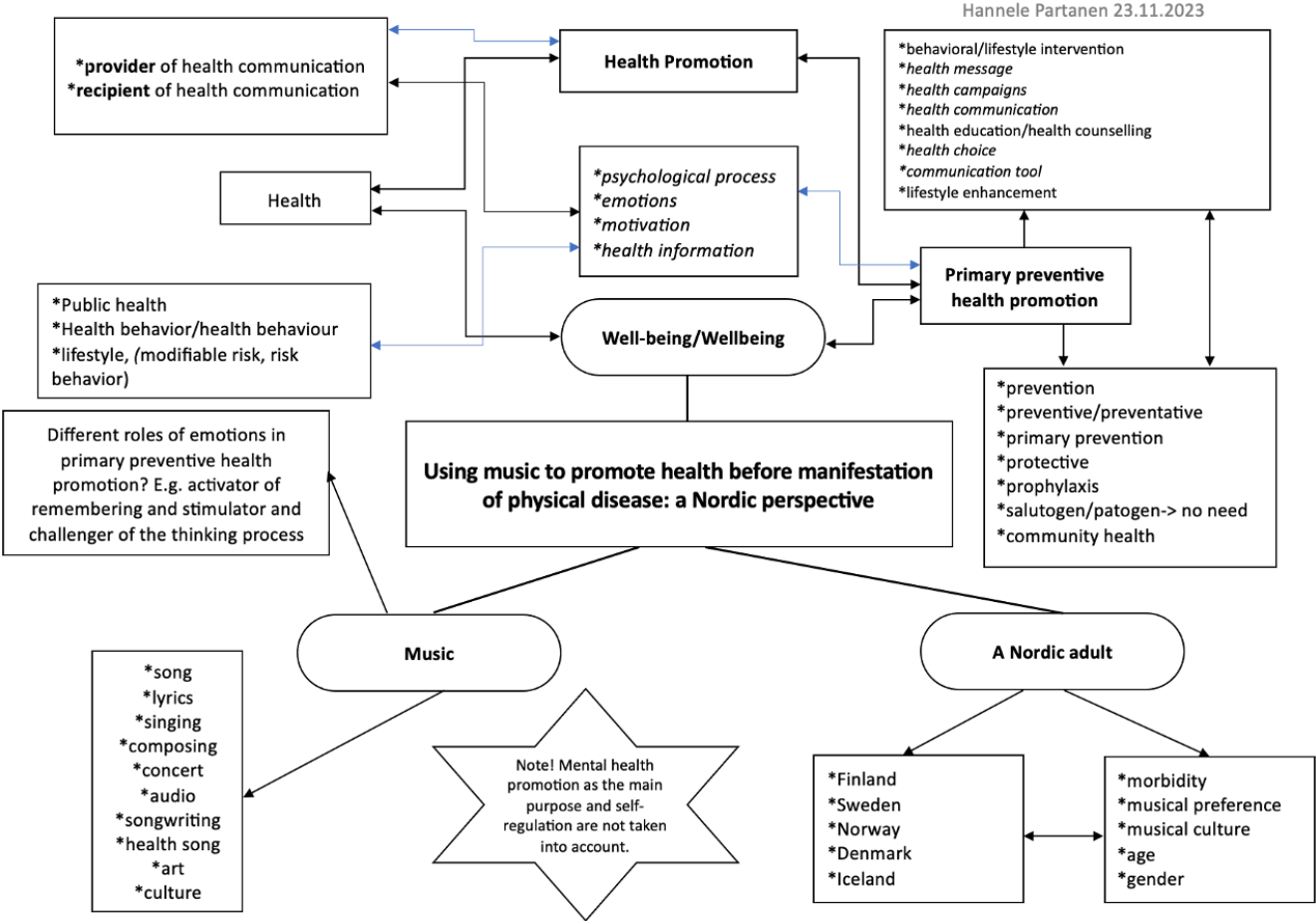


- Tolkki, P., Martikainen, J. & Mäki-Opas, T. (2022). Terveysten edistämisen vaikuttavuuden arviointi. In K. Patja, P. Absetz & P. Rautava (Eds.), *Terveysten edistäminen*, (pp. 189-196). Kustannus Oy Duodecim.
- Toronto, C.E. (2020). Overview of the Integrative Review. In C.E. Toronto & R. Remington (Eds.). *A Step-by-Step Guide to Conducting an Integrative Review*, (pp. 1-10). Springer.
- Toronto, C.E. & Remington, R. (2020). Discussion and Conclusion. In C.E. Toronto & R. Remington (Eds.). *A Step-by-Step Guide to Conducting an Integrative Review*, (pp. 71-84). Springer.
- Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, 4(3), 356–367. <https://doi.org/10.1177/1534484305278283>
- Tyng, C. M., Amin, H. U., Saad, M. N. M., & Malik, A. S. (2017). The influences of emotion on learning and memory. *Frontiers in Psychology*, 8, 1454. <https://doi.org/10.3389/fpsyg.2017.01454>
- Työterveyshuoltolaki 2001/1383 (2001, December 21). Finlex. <https://www.finlex.fi/fi/laki/ajantasa/2001/20011383>
- Ukkola-Vuoti, L. (2019). Miten musiikki vaikuttaa terveyteen. *Lääkärilehti* 21/2019, 1348-1353.
- United Nations (n.d.). *Universal Declaration of Human rights*. <https://www.un.org/en/about-us/universal-declaration-of-human-rights>
- Valtioneuvosto. (2023). *Vahva ja välittävä Suomi: Pääministeri Petteri Orpon hallituksen ohjelma 20.6.2023*. Valtioneuvoston julkaisuja 2023: 58. [urn.fi/URN:ISBN:978-952-383-763-8](https://urn.fi/URN:ISBN:978-952-383-763-8)
- Van Den Tol, A. J. M., Coulthard, H., & Hanser, W. E. (2020). Music listening as a potential aid in reducing emotional eating: An exploratory study. *Musicae Scientiae*, 24(1), 78–95. <https://doi.org/10.1177/1029864918780186>
- Vilkka, H. (2023). *Kirjallisuuskatsaus metodina, opinnäytetyön osana ja tekstilajina*. ART HOUSE.
- Vuoskoski, J. K., & Eerola, T. (2017). The pleasure evoked by sad music is mediated by feelings of being moved. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00439>
- Västfjäll, D., Juslin, P. & Hartig, T. (2012). Music, Subjective Wellbeing, and Health: The Role of Everyday emotions. In R. MacDonald, G. Kreutz & L. Mitchell (Eds.) *Music, health and Wellbeing* (pp. 405-423). DOI:10.1093/acprof:oso/9780199586974.003.0027
- \*Walker, G. R. (2022). Emotive media as a counterbalance to aids messaging fatigue in south africa: Responses to an hiv/aids awareness music video. *AIDS Education and Prevention*, 34(1), 17–32. <https://doi.org/10.1521/aeap.2022.34.1.17>
- \*Walus, B. P., Pauletto, S., & Mason-Jones, A. (2016). Sonification and music as support to the communication of alcohol-related health risks to young people: Study

- design and results. *Journal on Multimodal User Interfaces*, 10(3), 235–246.  
<https://doi.org/10.1007/s12193-016-0220-0>
- Warrenburg, L. A. (2020). Comparing musical and psychological emotion theories. *Psychomusicology: Music, Mind, and Brain*, 30(1), 1–19.  
<https://doi.org/10.1037/pmu0000247>
- Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing*, 52(5), 546–553.  
<https://doi.org/10.1111/j.1365-2648.2005.03621.x>
- Wight, D., Wimbush, E., Jepson, R., & Doi, L. (2016). Six steps in quality intervention development (6squid). *Journal of Epidemiology and Community Health*, 70(5), 520–525. <https://doi.org/10.1136/jech-2015-205952>
- Witte, K. (1992). Putting the fear back into fear appeals: The extended process model. *Communication Monographs*, 59, 329–349.
- World Health Organization (WHO) (1948). *Constitution of the World Health Organization*. Geneva. <https://www.who.int/about/governance/constitution>
- World Health Organization (WHO) (1986). The 1<sup>st</sup> international conference on health promotion, Ottawa. <https://www.who.int/teams/health-promotion/enhanced-well-being/first-global-conference>
- World Health Organization (WHO) (2021). *Health Promotion Glossary of Terms 2021*. Geneva: World Health Organization.
- World Health Organization (WHO) (2023). *About WHO*. <https://www.who.int/about>.
- \*Yoshida, I., Kobayashi, T., Sapkota, S., & Akkhavong, K. (2012). Evaluating educational media using traditional folk songs ('Lam') in Laos: A health message combined with oral tradition. *Health Promotion International*, 27(1), 52–62.  
<https://doi.org/10.1093/heapro/dar086>
- \*Yoshida, I., Kobayashi, T., Sapkota, S., & Akkhavong, K. (2013). A scale to evaluate music for health promotion in Lao PDR: Initial development and assessment. *Arts & Health*, 5(2), 120–131.  
<https://doi.org/10.1080/17533015.2012.736395>
- Zhang, J., Xu, Z., Zhou, Y., Wang, P., Fu, P., Xu, X., & Zhang, D. (2021). An empirical comparative study on the two methods of eliciting singers' emotions in singing: Self-imagination and vr training. *Frontiers in Neuroscience*, 15, 693468.  
<https://doi.org/10.3389/fnins.2021.693468>

# APPENDICES

## ANNEX 1





## ANNEX 2

### Search 1 for the review questions 1, 2, and 3

Database	Music	AND	Primary preventive health promotion	NOT	The primary preventive point of view is related to self-regulation or promotion of mental health  Other stages of prevention than primary prevention
<i>Specialized database</i>  <b>PsycINFO</b> Date: 9.2.2024  N= 203 → based on the title: <u>46</u>	music* OR song OR lyrics OR singing OR composing OR concert OR songwriting OR "health song" OR audio OR "music video"  (Field: Subjects)  <i>General limitations:</i> <ul style="list-style-type: none"> <li>- 1.1.2008-1.1.2024</li> <li>- English or Finnish</li> <li>- All journals and All Books</li> <li>- Peer-reviewed</li> <li>- Exclude dissertations</li> </ul>	AND	"health message" OR "health campaign" OR "health communication*" OR "health counsel*" OR "health choice" OR "health education" OR "preventive behavior*" OR "public health" OR "health information" OR "health policy" OR "primary prevention" OR prevent* OR "community health" OR "preventable disease" OR "early intervention" OR smoking OR immobility OR "nutri*" OR alcohol OR "risky behavior" OR "health awareness"  (Field: Subjects)	NOT	therapy OR psychiatric OR anxiety OR "mental health"  (Field: All text)
<i>Specialized database:</i>  <b>PubMed</b>  Date: 9.2.2024  N 182 → based on the title: <u>23</u>	"Music"[MeSH Terms]  (Field: Title/ Abstract)  <i>General limitations:</i> <ul style="list-style-type: none"> <li>- 2008-2024</li> <li>- English or Finnish</li> </ul>	AND	"Health Education"[MeSH Terms] OR "Health Communication"[MeSH Terms] OR "public health practice"[MeSH Terms]  (Field: Title/ Abstract)	NOT	"Psychiatry"[MeSH Terms] OR "Mental Health"[MeSH Terms] OR "Brain"[MeSH Terms]  (Field: Title/ Abstract)
<i>Interdisciplinary database:</i>  <b>Scopus</b>  Date: 17.2.2024  N: 47 → based on the title: <u>14</u>	music* OR song OR lyrics OR singing OR composing OR audio OR concert OR songwriting OR "health song" OR audio OR "music video"  (Field: Article Title)  <i>General limitations:</i> <ul style="list-style-type: none"> <li>- 2008-2024</li> <li>- English</li> </ul>	AND	"health communication*" OR "health choice" OR "health education"  (Field: Key Words)	AND NOT	"mental health" OR anxiety OR therapy OR psychiatric  (Field: All Fields)

	- Article, Book Chapter, Conference paper, Editorial				
<p><i>Music database:</i></p> <p><b>Music Periodicals Database (ProQuest)</b></p> <p>Date: 9.2.2024</p> <p>N = 183 → based on the title: <u>6</u></p>	<p>music* OR song OR lyrics OR singing OR composing OR concert OR songwriting OR "health song" OR audio OR "music video"</p> <p>(Field: Abstract)</p> <p><i>General limitations:</i></p> <ul style="list-style-type: none"> <li>- 1.1.2008-1.1.2024</li> <li>- English or Finnish</li> <li>- Books/Conference Papers &amp; Proceedings / Scholarly Journals</li> <li>- Peer-Reviewed</li> </ul>	AND	<p>"health message" OR "health campaign" OR "health communication*" OR "health counsel*" OR "health choice" OR "health education" OR "preventive behavior*" OR "public health" OR "health information" OR "health policy" OR "primary prevention" OR prevent* OR "community health" OR "preventable disease" OR "early intervention" OR smoking OR immobility OR "nutri*" OR alcohol OR "risky behavior" OR "health awareness"</p> <p>(Field: Abstract)</p>	NOT	<p>psychiatric OR therapy OR "mental health" OR anxiety OR brain</p> <p>(Field: Anywhere)</p>
<p><i>Interdisciplinary database:</i></p> <p>FINNA</p> <p>Date: 16.2.2024</p> <p>N= 124 → based on the titles: <u>13</u></p> <p>Includes "grey books" at this stage of the search</p>	<p>music* OR song OR musiikki* OR muusik*</p> <p>(Field: All hits)</p> <p><i>General limitations:</i></p> <ul style="list-style-type: none"> <li>- 2008-2024</li> <li>- English or Finnish</li> <li>- Books, E-books, research publication or conference publication</li> </ul>	AND	<p>"health promotion" OR "health choice" OR "health behavior" OR "health communication" OR "concept of health" OR "public health" OR "primary prevent*" OR "health policy" OR terveystiedettä OR terveystiedettä OR terveystiedettä OR elintapa* OR ennaltaeh* OR ehkäis* OR kansanterveys OR kansansairaus OR terveystieteet OR primaariprevent*</p> <p>(Field: Subject)</p>		
<p><b>Manual search/ Other Article sources:</b></p> <ul style="list-style-type: none"> <li>- based on the list of sources</li> <li>- google scholar manual search</li> <li>- given by an expert in the field (no affiliations)</li> </ul> <p>N = <u>17</u></p>	<p><i>General limitations:</i></p> <ul style="list-style-type: none"> <li>- 1.1.2008-1.1.2024</li> <li>- English or Finnish</li> <li>- Peer-reviewed articles, conference papers</li> </ul>				

# ANNEX 3

## Search 2, Supplementary search for the review question 2

Database	Music	AND	Psychological process/ Primary preventive health promotion	AND	Musical emotion	NOT	The primary preventive point of view is related to self-regulation or promotion of mental health  Other stages of prevention than primary prevention
<p><i>Specialized database</i></p> <p><b>PsycInfo</b></p> <p>6.4.2024</p> <p>N = 15</p> <p>Based on the title: 2</p>	<p>music* OR song OR lyrics OR sing* OR composing OR concert OR songwriting OR "health song" OR "music video"</p> <p>(Field: Title)</p> <p><i>General limitations:</i></p> <ul style="list-style-type: none"> <li>- 1.1.2008-1.4.2024</li> <li>- English or Finnish</li> <li>- All journals and All Books</li> <li>- Peer-reviewed</li> <li>- Exclude dissertation</li> </ul>	AND	<p>"health promotion" OR "health communication" OR "health message" OR "health speech" OR "health choice" OR "health attitude" OR "health educat*" OR "health behav**"</p> <p>(Field: Abstract)</p>	AND	<p>emoti* OR feel* OR affect* OR mood</p> <p>(Field: Abstract)</p>	NOT	<p>therapy OR psychiatric OR anxiety</p> <p>(Field: All Text)</p>
<p><i>Music database:</i></p> <p><b>Music Periodicals Database (ProQuest)</b></p> <p>Date: 6.4.2024</p> <p>N = 6 → based on the title: <u>1</u></p>	<p>music* OR song OR lyrics OR sing* OR composing OR concert OR songwriting OR "health song" OR "music video"</p> <p>(Field: Abstract)</p> <p><i>General limitations:</i></p> <ul style="list-style-type: none"> <li>- 1.1.2008-1.4.2024</li> <li>- English or Finnish</li> <li>- Books/ Conference Papers &amp; Proceedings / Scholarly Journals</li> <li>- Peer-Reviewed</li> </ul>	AND	<p>"health promotion" OR "health communication" OR "health message" OR "health speech" OR "health choice" OR "health attitude" OR "health educat*" OR "health behav**"</p> <p>(Field: Abstract)</p>	AND	<p>emoti* OR feel* OR affect* OR mood</p> <p>(Field: Abstract)</p>		

<p><b>Manual search/ Other Article sources:</b></p> <ul style="list-style-type: none"> <li>- based on the list of sources</li> <li>- google scholar manual search</li> <li>- given by an expert in the field (no affiliations)</li> </ul> <p><b>N = 0</b></p>	<p><i>General limitations:</i></p> <ul style="list-style-type: none"> <li>- 1.1.2008-1.4.2024</li> <li>- English or Finnish</li> <li>- Peer-reviewed articles, conference papers, high quality</li> </ul>						
---	---	--	--	--	--	--	--

## ANNEX 4

	<b>Inclusion criteria</b>	<b>Exclusion criteria</b>
Language	Papers in English and Finnish	
Publication	Peer-reviewed articles Conference papers Academic book articles Grey papers	No student works  Not available electronically, as a loanable book or free
Content	<p>Although interest is related to Nordic countries, there are <b>no geographical restrictions</b> on papers</p> <p><b>No age limit in the search phase</b></p> <p>Emphasis: - <b>primary preventive</b> point of view: prevention of <b>physically manifested diseases (risk behavior)</b> (does not limit how mental health might affect physical health choices and emotional responses to music) - health promotion through <b>health communication</b> - the perspectives of <b>the health promoter and the health being promoted</b></p> <p>Research question 2: musical emotion process: emotional process is related to the health communication or health behavior. Emotions are related to music.</p> <p><b>All music genres</b> Methods of implementation (e.g. concert, music video) at discretion</p>	<p>The primary preventive point of view is related to <b>self-regulation or promotion of mental health</b></p> <p><b>Other stages of prevention than primary prevention</b></p> <p>Music is not a central element of the health communication</p>
Research Method	Qualitative, quantitative, mixed methods studies and literature reviews are considered	Studies produced by non-scientific methods
Timeline	The last 15 years 2008-2024	Papers published before 2008

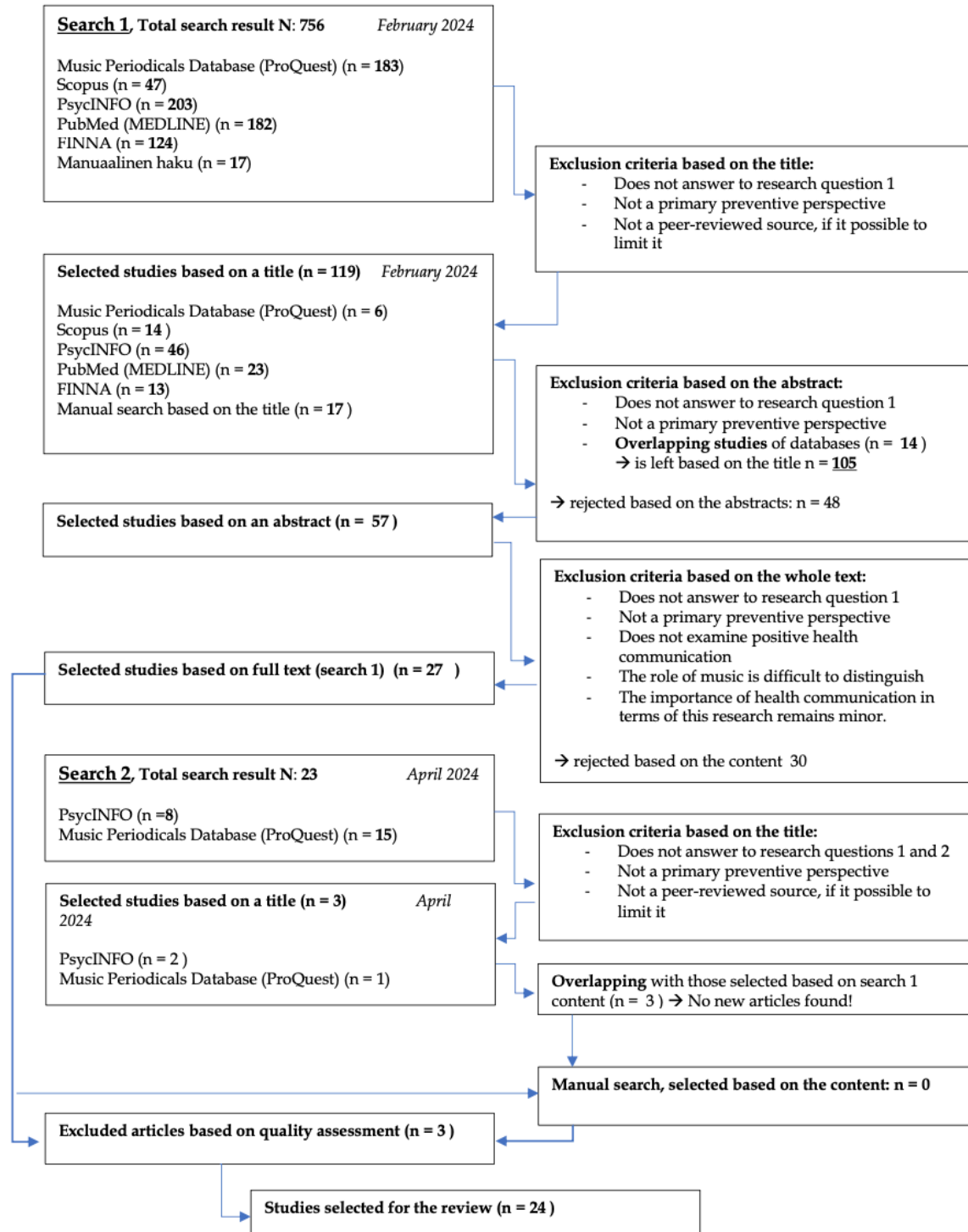
## ANNEX 5

### Information retrieval process, Search 1 and Search 2

**Search terms:** Search terms depend on the database used (See attachments 2 and 3)

**Inclusion criteria:** See annex 4, The full text will be reviewed

**Database limitations:** No



---

*Articles selected for the study*

---

<b>Author(s), year, Country</b>	<b>Purpose</b>	<b>Methods and Sample</b>	<b>Main findings</b>	<b>Special considerations</b>	<b>Quality</b>
<i>Qualitative studies</i>					
Mwangi & King'ori, 2023, Kenya  <b>1</b>	To examine the symbols used in lyrics and music videos.  Prevention of Covid-19	Semiotic analysis  Three songs with Covid-19 health message	The health messages were simplified with the help of music  The description of danger and high contagiousness was visible in the communication.  The description of patriotism was used		5/6  Peer-reviewed+
Walker, 2022, England/ South Africa  <b>3</b>	To analyze the use of an emotional music video "Sing" as a tool for health communication  Prevention of HIV/AIDS	Individual interviews and focus groups.  Independent data analysis, open coding, deductive thematic analysis  N= 200 (100 men and 100 women) high school students (15-19 years old).	Emotive music may help circumvent fatigue and apathy towards health communication (health messages related to AIDS)  Emotive media can help engage with the health message	Taking cultural sensitivity into account in health messages  The theory of three classes of emotional responses within public health media by Dunlop et al. (2008) was used to describe emotion reactions	5/6  Peer-reviewed+

<p>Abubakari, Assem &amp; Amankwah, 2021, <b>Ghana</b></p> <p><b>10</b></p>	<p>To analyze the use of indigenous language in music-based health communication (Googi-performance, Kuasaal)</p> <p>Prevention of Covid-19</p>	<p>The Framing Theory of Communication was used conceptualize.</p>	<p>Composer uses e.g. repetition, imagery, metaphors, petitions</p>	<p>Googi songs are spontaneous and unrehearsed. When composer has captured the full attention of audience, starts music with health messages.</p>	<p>4/6</p> <p>Peer-reviewed +</p>
<p>Thompson, Nutor, Johnson, 2021, USA/<b>Ghana</b></p> <p><b>11</b></p>	<p>To explore how songs are being used to create awareness about Covid-19</p> <p>Prevention of Covid-19</p>	<p>Thematic analysis, which only focused on the lyrics.</p> <p>28 Songs from YouTube</p>	<p>Eight themes emerged: “public health guidelines, COVID-19 is real and not a hoax, COVID-19 is infectious, prayer as method to stop the virus, emotional reaction and disruption of “everyday” activities; verbally expelling the virus, call for unity and collective efforts, and inspiring hope”</p>	<p>Suggest that examining lyrics can provide useful understanding about local attitudes and preventive strategies</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Rivera 2017, USA/<b>Liberia</b></p> <p><b>13</b></p>	<p>To analyze the lyrics, form, and music of two Liberian songs</p> <p>Prevention of Ebola</p>	<p>Discourse analysis</p> <p>Two Liberian songs with health message</p>	<p>Songs had emotionally and/or culturally connection with listeners</p> <p>Suggests that music represent more than just message.</p>		<p>6/6</p> <p>Peer-reviewed +</p>
<p>McConnell, 2016, Australia/<b>Gambia</b></p> <p><b>15</b></p>	<p>To analyze relationships between Kanyeleng musical performance groups</p>	<p>Ethnographic research, a social capital approach, grounded theory.</p>	<p>Moving from individual-centered thinking towards a culture-centered approach.</p> <p>Building trust between health promoter and target community using music genre</p>	<p>Identifying the unique expertise related to music-based health communication.</p>	<p>6/6</p> <p>Peer-reviewed +</p>



	<p>and health communication</p> <p>The target of the health communication was not specified.</p>	<p>N = 126 (97 performers and 32 health workers)</p> <p>Participant observation, 32 individual interviews and 21 group interviews. Follow-up interviews and analysis of video recordings.</p>	<p>A cultural approach</p>	<p>Used Social Capital Theory</p>	
<p>Bekalu &amp; Eggermont, 2015, Belgium/<b>Ethiopia</b></p> <p>16</p>	<p>Produce knowledge about potential of AIDS-songs to Facilitate message acceptance and positive changes in HIV/AIDS-related outcomes.</p> <p>Prevention of HIV/AIDS</p>	<p>Theory-based content analysis, Theoretical frame: EPPM = Extended Parallel Process Model</p> <p>23 songs from two albums of Ethiopian National Resource Center</p>	<p>Importance of cultural appropriateness</p> <p>Different messages were identified from the songs: threat messages and efficacy messages (more efficacy messages)</p>	<p>Draw attention to the importance of theory-based planning and evaluation of songs.</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Rattani, Syed, Sugarman, 2015, <b>USA</b></p> <p>17</p>	<p>To examine how HIV/AIDS is portrayed in hip hop music in general.</p> <p>Prevention of HIV/AIDS</p>	<p>Content analysis</p> <p>N= 104 songs of which 51 (was encouraged to risk reduction</p>	<p>“Hip hop music provides positive and negative representations of HIV/AIDS”.</p>	<p>Hip hop offers an attractive opportunity for preventive HIV/AIDS health communication in an attractive way for the target group.</p>	<p>5/6</p> <p>Peer-reviewed +</p>

<p>Paukste &amp; Harrish, 2015, <b>Australia</b></p> <p><b>18</b></p>	<p>To evaluate the VoxBox work-shop intervention</p> <p>Prevention of alcohol, tobacco and other drug harms</p>	<p>1)Observation of education sessions, 2) semi-structured group interviews, 3)last week's survey, 4)Focus groups and individual interviews with stakeholders</p> <p>Descriptive analysis. Thematic analysis</p> <p>Vox Box-intervention, 5 schools, seven creative workshops, 1-2h/session, 7 weeks (18 youths aged 14-18 (14 males, 4 females)</p>	<p>VoxBox pilot was successful.</p> <p>Participants dealt with the subject area by developing a group-based rap performance together with rap artist, music producers and promoters.</p> <p>Majority (82%) of the participants had changed their perspectives and the way of using music attracted young people.</p>	<p>Responsibility of the health promoter</p>	<p>5/6</p> <p>Peer-reviewed +</p>
<p>Potente, Rock, Mclver, Williams, Magee &amp; Chapman, 2013, <b>Australia</b></p> <p><b>20</b></p>	<p>To describe the results of the Sun Sound campaign</p> <p>It consisted of two components: a short, memorable musical jingle and a subsequent voice over of Be Sun Sound.</p> <p>Prevention of skin cancer</p>	<p>Case study</p> <p>1)Development process of The Sun Sound. It consisted of two components: a short, memorable musical jingle and a subsequent voice over of Be Sun Sound.</p> <p>2)An intercept survey: N = 467, 12-18 years old</p>	<p>Demonstrated the value of environmental strategies. It provided a real time reminder to youth.</p> <p>Almost half had heard Sun Sound and understood its meaning. More than a third have increased sun protection.</p>	<p>Demonstrated the value of environmental strategies. It provided a real time reminder to youth.</p> <p>It was more effective in aquatic settings.</p>	<p>6/6</p> <p>Peer-reviewed +</p>

<p>Yoshida, Kobayashi, Sapkota, Akkhavong, 2012, Japan/Laos</p> <p><b>21</b></p>	<p>To evaluate the use of folk song (lam) in health communication</p> <p>Prevention of HIV/AIDS</p>	<p>N= 48, 13 males and 35 females aged between 14 and 49 (mean age 30.7, SD 10.0).</p> <p>Focus groups discussions were conducted after the participants had listened to Lam for HIV/AIDS.</p> <p>KJ (Kawakita Jiro) method was used in the analysis.</p>	<p>"A lam-music can transfer health messages."</p> <p>However, traditional Lam did not meet the musical preferences of all young people</p>	<p>Limitations, e.g. no pre-interviews, possible translation and interpretation bias, and possible selection bias.</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Boutin-Foster, McLaughlin, Gray, Ogedegbe, Hageman, Knowlton, Rodriguez, Beeder, 2010, USA</p> <p><b>22</b></p>	<p>The RHAP program (Reducing HIV and AIDS through Prevention)</p> <p>To investigate the use of hip hop/rap music in preventive health communication.</p> <p>Prevention of HIV/AIDS</p>	<p>Describes RHAP program (5 weeks, 1h15min per each) and finds out its usefulness using formative evaluation, qualitative analysis.</p> <p>N= 26 (of which 12 girls), 12-13 years old</p> <p>After introduction, the workshop included listening and analyzing of songs with negative health message under the guidance of health professionals, and teacher was often present.</p>	<p>Participants described an increased awareness of hip hop and rap lyrics that are harmful for health</p>	<p>Good description of the project.</p> <p>The research design was light, and results are indicative.</p>	<p>5/6</p> <p>Peer-reviewed +</p>

<p>Lemieux, Fisher &amp; Pratto 2008, USA</p> <p>24</p>	<p>To examine the process of a music-based health intervention (conduction and evaluation) for urban adolescents</p> <p>Prevention of HIV/AIDS</p>	<p>Three months field experiment: Quasi-experimental nonequivalent control group design with pretest and posttest</p> <p>In this intervention, musically competent, exemplary behaving opinion leaders wrote, recorded, and distributed HIV prevention themed music to their peers.</p> <p>N = 306 students, which of 49% female, mean age 16.</p>	<p>The intervention influenced motivation, behavioral skills, condom use, and HIV testing behaviors.</p> <p>Researchers suggest that using music in youth HIV interventions can be effective</p>	<p>Intervention based on IBM-model (information, motivation and behavioral skills)</p>	<p>6/6 Peer-reviewed +</p>
<p><b>Author(s), year, Country</b></p> <p><i>Quantitative studies</i></p>	<p><b>Purpose</b></p>	<p><b>Methods and Sample</b></p>	<p><b>Main findings</b></p>	<p><b>Special considerations</b></p>	<p><b>Quality</b></p>
<p>Ogunsile, 2021, Nigeria</p> <p>9</p>	<p>" To determine the effectiveness of healthy eating songs (HES) in improving adolescents' healthy eating knowledge, attitude, and practice."</p>	<p>Quantitative: pre-test-posttest quasi-experimental nonequivalent group design</p> <p>N= 133, four randomly selected junior secondary schools. 2 classes (n = 37 and n = 35) received</p>	<p>Knowledge, attitude and practice improved significantly in both groups. Group whose education also included HES, performed better.</p> <p>Further testing in different cultures is needed.</p>	<p>The results cannot necessarily be generalized, e.g. power analysis was not done, individual participants were not randomized.</p> <p>Social Cognitive Theory was utilized.</p>	<p>6/6 Peer-reviewed +</p>

	Healthy eating	conventional classroom instruction with HES and 2 classes (n = 30 and n = 31) received conventional classroom instructions only. Nutrition program took 8 weeks, 1h20min per week.			
Walus, Pauletto, Mason-Jones, 2016, <b>England</b>  <b>14</b>	<p>“To determine whether a visual presentation of alcohol health risk data augmented by simple interactivity, or sonification, music and interactivity could improve recall of alcohol-related health risk information, alcohol risk perception and increase engagement with the visual presentation of data”</p> <p>Prevention of alcohol harms</p>	<p>3-arm pilot experiment</p> <p>Trial measures included health knowledge, alcohol risk perception and user experience of the intervention.</p> <p>N = 96, 1-month follow up. 18-25 years old university students. Randomly assigned three groups</p>	<p>The intervention significantly improved alcohol knowledge and alcohol risk perception also in the group where no music and sonification were used.</p> <p>Sound, music and sonication helped convey information</p>	<p>No significant results, but study will provide a model for future research.</p> <p>According to researcher, sample size may have been too small</p>	<p>6/6</p> <p>Not peer-reviewed</p>

Author(s), year, Country	Purpose	Methods and Sample	Main findings	Special considerations	Quality
<p><i>Mixed methods</i></p> <p>Raisa, Roberto, Love, Steiness, Salim &amp; Krieger, 2023, USA/Bangladesh</p> <p>2</p>	<p>To design, test, and evaluate a culturally grounded intervention.</p> <p>Breast cancer education</p>	<p>1)Formative evaluation of key factors and development of intervention. 2)Experimental design, quantitative testing: a group randomized, post-test only</p> <p>N = 978 (women and husbands/mother in-laws)</p>	<p>Importance of cultural sensitivity</p> <p>Involving loved ones in the intervention</p> <p>Study procedures and measurement instruments that reflect different cultural contexts and languages should be developed.</p>	<p>Cultural understanding</p> <p>Pays attention to the importance of assessing internal and ecological validity in research process</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Clark &amp; Doryab, 2022, USA</p> <p>4</p>	<p>To explore the suitability of personalized sonification for the delivery and communication personal health information</p> <p>Influencing health behavior</p>	<p>The research had two phases. In the first step, the researchers created an overview of the healthiness of music with the help of a questionnaire addressed to the participants. In the second stage, based on the survey, individually tailored melodies were tested.</p> <p>N = 55</p>	<p>It is possible to present health information using personalized music models.</p>		<p>6/6</p> <p>Peer-reviewed +</p>
<p>Manana, Jewett, Zikhali, Dlamini, Mabaso, Mlambo,</p>	<p>To assess the acceptability of a song that utilizes a culture's</p>	<p>An exploratory concurrent mixed-methods</p>	<p>Song was experienced culturally acceptable and appropriate for age thinking about health communication goals of the song.</p>	<p>Survey sampling was not random, the findings cannot be generalized.</p>	<p>6/6</p> <p>Peer-reviewed +</p>

<p>Ngobese, Munchenga, 2021, <b>South Africa</b></p> <p>8</p>	<p>music genre (Mas-kandi) in health communication.</p> <p>Prevention of Malaria</p>	<p>study (qualitative and quantitative)</p> <p>A local music group participated in making the song.</p> <p>Two self-administered surveys, N= 140:</p> <p>100 community members (of which 54 participated in community survey (69% women) and all in the community dialogue sessions, two groups: 18-49 years old and 50 and older → 18-78, median 43years)</p> <p>40 experts</p>	<p>Importance of tailoring and cultural relevance.</p>	<p>The target group was wide, and the music genre did not meet everyone's preferences.</p>	
<p>Yoshida, Kobayashi, Sapkota, Akkhavong, 2013, Japan/<b>Laos</b></p> <p>19</p>	<p>To develop the Scale for Evaluating Music for Health Promotion (SEMHP), and its evaluation</p> <p>To the people of Lao PDR</p>	<p>Qualitative exploratory study, three music genres was tested.</p> <p>Analysis method: principal axis factoring method with promax rotation.</p> <p>N = 183 students (males 39.3%, females 60.7%)</p>	<p>It would be useful to evaluate music for health promotion.</p> <p>The final SEMHP: four factors: emotional involvement (positive reactions), message persuasion, cultural fitness, musicality</p>	<p>The sample size was small</p>	<p>6/6</p> <p>Peer-reviewed +</p>

		<p>mixed with secondary school students (63.9%)</p> <p>and technical college students (36.1%). Their ages ranged from 14 to 25 years</p>			
<p><b>Author(s), year, Country</b></p> <p><i>Other scientific papers</i></p>	<p><b>Purpose</b></p>	<p><b>Methods and Sample</b></p>	<p><b>Main findings</b></p>	<p><b>Special considerations</b></p>	<p><b>Quality</b></p>
<p>Appiah, Walia, Nam, 2022, USA/<b>Ghana</b></p> <p>5</p>	<p>Lessons from the Covid-19 pandemic</p> <p>Prevention of Covid-19</p>	<p>Commentary text</p>	<p>Presents elements related to intervention planning:</p> <ol style="list-style-type: none"> <li>1) convergence and cooperation of different agents (political leaders, creative industry, health care workers)</li> <li>3) Identifying key elements</li> <li>4) Cultural Relevance</li> <li>5) Evaluation of effectiveness</li> </ol>	<p>The utility of repetition and simple techniques</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Ibiyemi, Lawl, Osuh, Owoaje, Idiga, Fagbule, Ijarogbe, 2022, <b>Nigeria</b></p> <p>6</p>	<p>To describe the development process of health communicative song.</p> <p>Oral hygiene</p>	<p>Scientific research report</p> <p>Oral health professionals, music experts, traditional/local musicians, parents/guardians, schoolteacher, and community crated a 90 second song for children and teenagers over 6 months. It included process validation and evaluation</p>	<p>Learning points:</p> <ol style="list-style-type: none"> <li>1)Leadership in multiprofessional working group</li> <li>2)Smooth and effective communication skills between different individuals</li> <li>3) Cultural relevance; content and context of messages in music</li> </ol>	<p>Developing process:</p> <ol style="list-style-type: none"> <li>1)Forming a multi-professionalism team</li> <li>2)Song writing process: song type, lyrics, melodies</li> <li>3)Production</li> <li>4)Evaluation, validation and possible changes</li> <li>5)Finalizing</li> </ol>	<p>5/6</p> <p>Peer-reviewed +</p>



<p>Benavides, Capparrós, Monã da Silva, Lembo, Tem Dia, Hampson &amp; Dos Santos, 2021, Chile, Brazil, United Kingdom, Liberia, Mozambique, <b>Several countries, not the Nordic countries</b></p> <p>7</p>	<p>Provides examples of implementation of music-based health intervention and discusses challenges and solutions.</p> <p>Example-intervention based on Ebola 2021 experiences</p>	<p>Perspective article:</p> <p>Fours steps for a successful music-based health intervention</p>	<p>Essential health music intervention needs at least four steps (prevention of emerging infectious diseases):</p> <ol style="list-style-type: none"> <li>1) Establishment of a working group</li> <li>2) Song writing process</li> <li>3) Marketing/reaching the target group</li> <li>4) Monitoring and evaluating the effectiveness</li> </ol> <p>Recommends long-term collaborations.</p>	<p>The conclusions are based on the authors own experience and research articles.</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Jones, 2020, <b>USA</b></p> <p>12</p>	<p>To explore techniques where palimpsests (Pandemic pop) are used in health communication.</p> <p>Prevention of Covid-19</p>	<p>Scientific essay</p>	<p>Well-known song with new humorous lyrics may help to gain listeners.</p> <p>Suggests that palimpsests are a useful tool for health communication.</p>	<p>Positive feelings towards health communication</p>	<p>6/6</p> <p>Peer-reviewed +</p>
<p>Bastien 2009, <b>Tanzania</b></p> <p>23</p>	<p>Deals with the relationship of music and musicians to AIDS discourses in Tanzania</p> <p>Prevention of HIV/AIDS</p>	<p>Illustrative short report</p> <p>In-depth interviews, content analysis of seven identified songs</p> <p>N = 65 young people (aged 13-18 years)</p>	<p>Three themes, metaphors, stigma and broader HIV prevention messages were identified</p>	<p>Utilization of opinion leaders</p>	<p>6/6</p> <p>Peer-reviewed +</p>