MIXED METHODS ANALYSIS ON THE COVERAGE OF PHYSICAL ACTIVITY IN THE IRISH INDEPENDENT AND IRISH TIMES BEFORE AND DURING THE COVID-19 PANDEMIC

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Tiivistelmä – Abstract

Fyysisellä aktiivisuudella tiedetään olevan monia terveyttä edistäviä vaikutuksia, kun taas liian vähäinen liikunta on merkittävä riskitekijä terveydelle. Irlannissa ainoastaan kolmannes aikuisväestöstä saavuttaa liikuntasuositusten mukaisen määrän liikuntaa, joten kansanterveydellisestä näkökulmasta fyysisen aktiivisuuden lisääminen on tärkeää, ja tähän tulisi pyrkiä monin keinoin. Joukkotiedotusvälineillä, kuten sanomalehdillä, voi olla huomattava vaikutus ihmisten terveyskäyttäytymiseen, joten se, miten mediassa käsitellään esimerkiksi liikuntaa voi vaikuttaa ihmisten asenteisiin ja ymmärrykseen sitä kohtaan.

Tämän tutkimuksen tarkoituksena oli selvittää, miten liikuntaa käsitellään Irlannin kahdessa suurimmassa sanomalehdessä ennen koronaviruspandemiaa sekä sen aikana. COVID-19-viruksen aiheuttama koronaviruspandemia rajoitti vahvasti ihmisten elämää ja liikkumista maaliskuusta 2020 eteenpäin, millä oli merkittäviä taloudellisia ja yhteiskunnallisia vaikutuksia. Tutkimuksen aineisto koostuu yhteensä 32:sta the *Irish Times* sekä *Irish Independent* -lehdissä kolmen peräkkäisen vuoden (2019, 2020 ja 2021) huhtikuussa julkaistuista fyysiseen aktiivisuuteen liittyvistä artikkeleista. Aineiston analyysi toteutettiin monimenetelmällisesti hyödyntäen sekä sisällönanalyysia että kehysanalyysia. Yleisimmät aineiston artikkeleissa esiintyneet liikuntaan liittyvät aiheet koskivat liikunnan vaikutuksia sekä koronarajoituksia. Kaikkiaan eri aihekategorioita, joiden esiintyvyyteen koronapandemian vaikutus osaltaan heijastui, muodostui sisällönanalyysissa 11. Kehysanalyysi keskittyi artikkeleissa useimmin esiintyneeseen teemaan eli liikunnan vaikutuksiin. Tätä aihetta käsittelevät tekstiotteet analysoitiin hyöty- ja tappiokehysten (gain / loss frame) näkökulmasta. Hyötykehys, jossa korostetaan liikunnan positiivisia vaikutuksia, oli liikunnan vaikutuksista puhuttaessa yleisempi kuin tappiokehys, joka korostaa liikkumattomuuden haittoja. Retorisista kehystyskeinoista hyötykehyksessä käytettiin usein yksiselitteisiä verbejä preesensissä ja tehostavia adverbejä sekä puhuteltiin lukijaa suoraan *you*-pronominin avulla. Tietolähteenä käytettiin puolestaan monesti alan asiantuntijoita, tutkimustietoa tai tavallisten ihmisten omia kokemuksia. Tutkimusten mukaan hyötykehyksen käyttäminen saattaa olla tappiokehystä tehokkaampi tapa muotoilla terveyteen liittyvää informaatiota, joten terveyden edistämisen näkökulmasta voidaan pitää positiivisena löydöksenä sitä, että hyötykehys todettiin tässä aineistossa yleisemmäksi liikunnan vaikutuksista puhuttaessa. Tutkimuksen analyysi vahvisti myös sitä, kuinka koronaviruspandemia vaikutti muiden asioiden ohella myös ihmisten liikuntakäyttäytymiseen sekä liikunnan medianäkyvyyteen. Se, miten media käsittelee terveyteen liittyviä aiheita, voi vaikuttaa ihmisten terveyskäyttäytymiseen, joten aiheen tutkiminen laajemmin ja muissa medioissa olisi perusteltua myös kansanterveydellisestä näkökulmasta.

Asiasanat – Keywords
physical activity, framing, newspaper, health communication, Ireland

Säilytyspaikka – Depository University of Jyväskylä

Muita tietoja – Additional information

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1 INTRODUCTION

The purpose of this thesis is to investigate the portrayal of physical activity in Ireland's two largest newspapers before and during the COVID-19 pandemic. The main interest is to analyse how physical activity is presented in the news in general, but the purpose of this study is also to analyse if (and how) the coverage of physical activity has changed during the pandemic.

Of the English-speaking countries, Ireland is probably the most similar to Finland (for example a similar population, and both are EU-members), which supported the choice of Ireland as the target country. Being a member of the European Union also affects the country's health policy (e.g. European Commission n.d.), which again relates to physical activity. Naturally, the results of this study are not applicable to Finland, but the similarities between these two countries provide grounds to reflect the situation in Finland too.

A field of research this thesis strongly relates to is health communication. Schiavo (2013: 5) defines health communication as:

> *A multifaceted and multidisciplinary field of research, theory, and practice concerned with reaching different populations and groups to exchange health-related information, ideas, and methods in order to influence, engage, empower, and support individuals, communities, health care professionals, patients, policymakers, organizations, special groups, and the public so that they will champion, introduce, adopt, or sustain a health or social behaviour, practice, or policy that will ultimately improve individual, community, and public health outcomes.*

Mass media, including for example traditional print media and newspapers, is one of the communication areas in health communication (Schiavo 2013: 27). Mass media can have a powerful impact on people's opinions and daily decisions, and from a public health perspective, mass media can also have a significant influence on people's health behaviour. The way health-related issues or diseases are presented and covered in the media can have an effect, for instance, on what people think about the severity of certain diseases or even on what they eat or do in their leisure time (Schiavo 2013, 149-151).

Language, and text in particular, plays a major role in news media communication, and according to Fairclough (1995: 2), the power of media is largely a matter of how language is used. Language use can be seen as a social practice; language is not only socially shaped, but also socially shaping (Fairclough 1995; 54-55). Language use shapes social identities, social relations and systems of knowledge and belief, so language can be used in conventional ways to reproduce or maintain existing aspects of society and culture or in creative ways to transform them (Fairclough 1995; 54-55). Therefore, the way language is used to communicate about physical activity, can also shape people's attitudes and beliefs towards it, which makes language-related research relevant in health communication as well.

Bednarek and Caple (2012) have listed values that make a story newsworthy, that is, what kind of stories tend to end up published. These values include negativity, timeliness, proximity, prominence, consonance, impact, novelty, superlativeness, and personalisation. They argue that newsworthiness is construed through discourse and language, and that several linguistic resources can be used to construe news value. These linguistic devices include, for instance, evaluative language, references to emotion, negative vocabulary, references to time and place, and role labels (Bednarek & Caple 2012: 39-82). Therefore, the linguistic choices and use of language are also relevant in health communication in the mass media and news; does the actual health information content "get lost" in the pursuit of newsworthiness when writing about health-related issues?

Previous research on portrayal of different health related issues in the media exist, but few have focused on mainly physical activity. Most studies seem to focus on the US, and no previous research about Irish news media and physical activity was found. Therefore, this study will possibly provide novel information on the coverage of physical activity in Ireland. The way the media presents physical activity might have an impact on people's attitudes towards exercise or on their own physical activity behaviour, which in turn can have practical implications for public health. Presenting physical activity in a positive light and in an encouraging way could possibly even encourage people to be more active, so the news can play a role in health promotion too. However, framing physical activity through the negative effects of inactivity can be an effective motivation to exercise for some people, so it will be interesting to analyse the dominant approach in Irish newspapers.

This thesis consists of five chapters. After this first chapter, the introduction, the theoretical framework for the study is presented in Chapter 2. The chapter is divided into four sections that discuss the topics of physical activity, COVID-19 pandemic, health and media, and finally, the research perspective - media analysis. In Chapter 3, the research questions are presented followed by explanation of the data selection and collection process. The methods of analysis applied in this study - content analysis and framing analysis - are discussed in the final section of chapter 3. The actual analysis that is found in Chapter 4 is divided into two sections according to the two analytical methods applied. Finally, Chapter 5 includes discussion and conclusions reflecting the results of this study.

2 BACKGROUND - THEORETICAL AND METHODOLOGICAL FRAMEWORK

In this chapter, relevant background information concerning the topic of the thesis will be presented. First, the key concepts physical activity and COVID-19 pandemic in general and in the Irish context will be explained. After this, the topic of health and media will be discussed along with relevant previous research. Finally, methodological background relevant to this thesis will be presented.

2.1 Physical activity

The World Health Organization (WHO) defines physical activity as *"any bodily movement produced by skeletal muscles that requires energy expenditure*" (WHO 2020). According to WHO's recommendation on physical activity, adults should do at least 150 minutes of moderate-intensity or at least 75 minutes of vigorous-intensity aerobic physical activity weekly for good health. In addition to aerobic activities, muscle-strengthening activities should be performed at least twice a week. Regular physical activity provides several health benefits, for instance, by improving overall fitness and bone health, reducing the risk of hypertension, coronary heart disease, diabetes, cancer and depression. On the contrary, physical inactivity is a major risk factor for noncommunicable diseases mortality. (WHO 2020).

Physical activity in Ireland. In Ireland, the national guidelines on physical activity are based on the international guidelines, and therefore, are similar to the WHO's recommendations; at least 30 minutes a day of moderate physical activity on five days a week or at least 150 minutes a week is recommended for adults aged 18-64 (Healthy Ireland 2016). Approximately only one-third of the adults in Ireland meet these recommendations (WHO 2018), so from a public health perspective, increasing physical activity and reducing inactivity is highly important and should be promoted in different ways.

As a part of *Healthy Ireland*, which is a framework for health and wellbeing 2013-2025, a national physical activity plan for Ireland, *Get Ireland Active*, has been created (Healthy Ireland

2016) . This plan consists of eight areas for action, and the first action area concerns public awareness, education and communication. The goal is that "Irish people will better understand the health benefits of physical activity and how to be more active in their daily lives" (p. 15). The plan also states that the use of traditional media can be an effective way to communicate consistent and clear messages about physical activity to large populations (Healthy Ireland 2016).

2.2 COVID-19 pandemic in Ireland

A new coronavirus that causes the Coronavirus disease 2019 (COVID-19) was first identified in Wuhan, China, in December 2019 (CDC 2020). The symptoms of COVID-19 can vary from mild symptoms to severe illness and even death, and the risk of severe illness is increased among some people, including older adults and people with certain medical conditions (CDC 2020). The first confirmed coronavirus cases in Europe were reported in France on 24 January 2020 (WHO Timeline n.d.). On 11 March 2020 WHO characterised COVID-19 as a pandemic, and two days later, Europe was declared as the epicenter of the pandemic with more reported cases and deaths than the rest of the world combined, apart from China (WHO Timeline n.d.). By May 2021, there had been over 150 million confirmed cases and over 3 million deaths in the world reported to WHO (WHO Coronavirus Dashboard, 2021). In Europe alone, there had been 50 million confirmed cases and over one million deaths.

The COVID-19 pandemic has had a major economic and social impact worldwide. Different policy responses that have significantly affected normal living have been implemented by governments to manage COVID-19's impact. Such measures have included social distancing through lockdowns closing, for example, public spaces, schools and restaurants, self-isolation, and travel restrictions. This has led to severe difficulties in economy, employment and well-being, and in fact, the pandemic has been said to have caused the most serious economic crisis since World War II (Allain-Dupré et al. 2020).

Vaccination against COVID-19 has been a major step towards ending the pandemic. The development of COVID-19 vaccine began rapidly in the spring of 2020, and human clinical testing with the first vaccine candidate started already mid-March 2020 (Le et al. 2020). The

UK was the first country that approved and started using the Pfizer vaccine in early December 2020 (BBC 8 December 2020).

COVID-19 in Ireland. The COVID-19 pandemic has had a significant influence on everyday life in Ireland, for instance, through various restrictions. In Ireland, the first case of COVID-19 was reported on 29 February 2020, after which the number of new cases grew rapidly, having its peak in mid-April (Kennelly et al. 2020). In March, the Government gradually introduced mandatory measures to control the spread of the virus; for instance, schools and colleges were closed and indoor gatherings of more than 100 people were banned on March 12, and pubs were closed on March 15. On March 24, a second raft of mandatory measures was introduced including the closure of non-essential businesses, cancellation of all indoor and outdoor sporting activities, and prohibition on social gatherings of more than four individuals. The third range of measures was introduced on March 27: people were told to stay at home unless to access essential services or essential work, exercise and travel were restricted to take place within 2 kilometres of home, and gatherings with anyone outside the household were banned. The four-phased gradual reopening of the society began on May 18 when, for instance, groups of four people were allowed to meet outdoors, outdoor sport and fitness activities were allowed to open. Phase 2 of reopening took place on June 8, phase 3 on June 29, and phase 4 on August 10. (Kennelly et al. 2020).

The second wave of coronavirus infections in Ireland took place from August to November 2020, and the third wave began in December 2020 and lasted until the end of June 2021 (Lima 2021, Health Protection Surveillance Centre 2021). The Government of Ireland has created a plan to manage COVID-19, which consists of five levels of restrictions Level 1 having the fewest restrictions and Level 5 having the most (Citizens Information Board 2021). In the beginning of April 2021, all counties in Ireland were on Level 5, which means that the lockdown situation and restrictions were similar to the ones during the first lockdown in spring 2020. However, during April 2021, the restrictions were gradually eased; from 12 April, two households were allowed to meet away from their gardens, and people were allowed to travel within 20 km of their home. At the end of April, a reopening plan for May and June was announced, including, for instance, reopening outdoor sport facilities and allowing non-contact sports training again in pods of up to 15 from 10 May 2021 (Citizens Information Board 2021).

2.3 Health and media

Even though the internet is nowadays popular for health information seeking, traditional media is not completely forgotten. For example, Jacobs et al. (2017) discovered that among adults in the US, especially older people, people with low socioeconomic status, or people with poor internet skills still rely on traditional media (such as magazines or books) for health information. According to a study by Redmond et al. (2010), use of print media as a source of health information was associated with certain self-reported health behaviours in the US. Use of print media was associated with meeting diet recommendations for fruit and vegetable intake and being a nonsmoker, but no association was detected with meeting recommendations for exercise.

Previous research. Previous research on the coverage and representation of health related issues exist, but not so many have focused purely on physical activity. Recent study from Davis et al. (2020) explored storytelling and framing strategies the news media uses to communicate about physical activity in the US. The media sample included articles published in 2019 from 19 US newspapers with the highest circulation. Their framing analysis showed that in the media, (1) the articles "narrowly focus on strenuous forms of exercise and exclude other forms of physical activity", (2) "explanations for why people are physically active tend to be highly individualised", (3) the articles "focus on the impacts of physical activity on physical health" and (4) "lack an equity perspective" (Davis et al. 2020).

Other studies have looked into physical activity in the media together with other health related issues. For instance, Caburnay et al. (2003) examined the coverage of diet, activity, and tobacco in local newspapers in Missouri. The amount of health behaviour stories was relatively small and half of the stories had a primary prevention focus. Their content analysis revealed that most physical activity stories were feature stories, but research, data, and investigators were also mentioned relatively often (Caburnay et al. 2003). Chau et al. (2009) examined physical activity coverage in Australian newspapers in 1986-2006, and they discovered that reporting of physical activity increased between 1986 and 2006, but compared to the coverage of obesity and tobacco, physical activity received less attention. McGannon and Spence (2012) studied news media representations of women's exercise and subjectivity in a Midwestern US newspaper using critical discourse analysis. They identified two primary discourses that were

a discourse of exercise and appearance and a discourse of consumerism. Kean et al. (2014) examined how health, weight and fitness messages were framed in African American women's magazines. Their analysis revealed four themes in how health messages are presented, and these were race and identity, wellness, faith and connection.

Moreover, there is a great amount of research on other health-related issues in the news media. For example diabetes (e.g. Foley et al. 2020, Hellyer & Haddock-Fraser 2011, Gollust & Lantz 2009, Rock 2005) and obesity (e.g. Cain et al. 2017, Saguy & Almeling 2008, Kim et al 2007) have been common topics.

2.4 Research perspective - media analysis

The idea of this study is to analyse how physical activity is presented in the news. As has been discussed above, the media can affect people's beliefs and behaviour, so the way health-related issues, including physical activity, are presented in the media plays a role in health-related behaviour and health promotion too. For some people, the media might be the most relevant, if not the only, place to receive information about health and physical activity, so it matters what type of information there is published and how that information is framed. Therefore, the perspective of this study builds heavily on health communication and also on media discourse.

Media content and media communication can be analysed in several ways using either quantitative or qualitative methods. Depending on the study, some methods are naturally more suitable than others, but for instance Macnamara (2005: 6) states that "a combination of quantitative and qualitative content analysis offers the best of both worlds" and that the combination of these methodologies "is necessary to fully understand the meanings and possible impacts of media texts".

2.4.1 Framing

This study applies framing analysis. The concepts of frames and framing are shortly introduced here, but framing analysis as a method is presented and discussed in more detail later in this thesis in the methods chapter, in section 3.3.2.

In qualitative methodologies, frame, themes, and discourse are overlapping concepts that are used to capture meaning and emphasis in qualitative studies (Altheide & Schneider 2013: 38-74). They are related to communication formats that refer to the selection, organisation, and presentation of information. Frames determine what is said, how is said, and what is *not* said about the issue at hand, in other words, how a certain issue is framed (Altheide & Schneider 2013: 38-74). Furthermore, as Entman (1993: 52) describes, frames define problems, diagnose causes, make moral judgments, and suggest remedies. Thus, framing analysis can offer a suitable tool to analyse the presentation of health-related issues, including physical activity, in the news media.

Entman (1993; 52) states that

> *To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described*.

When it comes to news framing, "media frames work by connecting mental dots for the public" (Nisbet 2010: 47). A connection is suggested between two concepts, issues, or things, so that after encountering the framed media message, people accept or are at least aware of this connection. Successful framing makes connections that are somehow relevant to something that the public already understands or values. If this is not the case, the message is more likely to be ignored by the recipient or to lack personal significance. (Nisbet 2010: 47-48). This is relevant also in media frames related to health issues, especially health promotion, as the health issue at hand should be connected with something that is familiar and valued by the reader, in order for the message to have an influence on the reader.

Among other fields of research, framing has been used in health communication, where researchers have focused dominantly on the psychological tradition of framing studies (Guenther et al. 2021). In addition, generic and thematic frames seem to be given equal attention (Guenther et al. 2021).

One example of framing and frames studied in health communication is the use gain and loss frames. A gain-framed message highlights the benefits of engaging in a particular behaviour,

whereas a loss-framed message highlights the consequences of not engaging in a particular behaviour (Gallagher & Updegraff 2012: 101). In their meta-analysis, Gallagher and Updegraff (2012) investigated health message framing effects on attitudes, intentions, and behaviour, and they discovered that gain-framed messages were significantly more likely to promote prevention behaviour compared to loss-framed messages. The persuasive effects of gain-framed messages were strongest in the domains of smoking, skin cancer prevention, and physical activity. In terms of physical activity, a gain-framed message could be, for example, "regular exercise can help you lose weight", and a loss-framed message, on the other hand, could be "not exercising regularly can make you gain weight. (Gallagher & Updegraff 2012).

As can be seen from the restriction measures in Ireland, the COVID-19 pandemic has affected people's possibilities to be physically active and practice regular sporting activities. Therefore, it can be hypothesised that the coverage and presentation of physical activity in the news has possibly also changed. That is why the aim of this study is to not only analyse the coverage of physical activity in the Irish newspapers in general, but also to compare the possible differences between the time before and during the pandemic. Methodologically, framing analysis will also be applied in this study, as a systematic review by Guenther et al. (2021) showed that framing studies in health communication has focused mainly on three health topics: cancer, obesity and nutrition, and vaccines. Therefore, conducting more framing studies on other health topics, such as physical activity, can be fruitful for the fields of health communication and media analysis.

3 METHODS

The methodological steps of this thesis are presented in this chapter. The research questions are defined in section 3.1, followed by detailed explanation of the data selection and collection process in section 3.2. Finally, the methods of analysis are explained in section 3.3.

3.1 Research questions

The aim of this study is to answer the following research questions:

1. How is physical activity presented and framed in the *Irish Independent* and *Irish Times*?
2. What differences in the portrayal of physical activity can be detected when comparing April 2019, 2020 and 2021? (before, at the beginning, and after the first year of the COVID-19 pandemic).

3. 2 Data selection and collection

The data of this study consists of articles from the *Irish Independent* and the *Irish Times*. These are clearly the two largest national newspapers in Ireland with approximately the same circulation, so they will provide a relatively good image of the "typical" news on a national level. The main reason for selecting Ireland and Irish newspapers was language, since English-language data was needed for this thesis. A personal exchange-study experience in Ireland also made the country easily approachable. As for their political orientation, the *Irish Independent* is considered conservative and the *Irish Times* centre-left (Eurotopics n.d.) or liberal (Wikipedia n.d.). In 2018, when both *Irish Independent* and *Irish Times* were still registered with the Audit Bureau of Circulations (ABC), the daily circulation was 83,900 for the *Irish Independent* and 58,131 for the *Irish Times* (Medialive n.d.). Newspaper circulations in Ireland have decreased significantly in the 21st century, but the press media's share of media expenditure was still 21% in 2020.

Articles related to physical activity were collected using relevance sampling, which aims at selecting all texts that contribute to answering the research questions (Krippendorff 2013: 120-121). To keep the amount of data reasonable for a Master's thesis project, data from altogether three months was collected. The selected time periods were April 2019, 2020 and 2021. April 2019 serves as the sample from before the COVID19-pandemic, April 2020 represents the beginning of the pandemic and the first lockdown, and April 2021 reflects the time when the pandemic had been going on for over a year. April was selected based on the beginning of the pandemic and the first lockdown in Ireland in 2020. The same month was then selected for 2019 and 2021 as well to minimise the possible seasonal variation in physical activity coverage in the news. The articles from the *Irish Independent* and *Irish Times* were searched using *ProQuest* database, where full text coverage from both of these newspapers were available. *ProQuest* offers only the textual content of the news articles, so no multimodal analysis will be performed with the data. Relevant articles were searched with the terms "physical activity" and "exercise". For *Irish Independent* the search clause was *("physical activity" OR exercise) AND PUBID(27149)*, and for *Irish Times* it was *("physical activity" OR exercise) AND PUBID(27283)*. Additional limits were set for the dates in order to search articles from April 2019, 2020, and 2021 (e.g. from 01 April 2019 to 30 April 2019).

Therefore, altogether six separate searches were performed; three for *Irish Independent* and three for the *Irish Times*. The searches were done on 21 and 22 September 2021. The searches resulted in 589 hits. These were skimmed through to select all possibly relevant articles, that is, articles that focus on physical activity or exercise. Articles focusing purely on professional sports were not included, as the purpose was to approach physical activity from a (public) health perspective in this study. This preliminary selection resulted in 53 articles, which were then all read through to identify articles that had their main focus on physical activity or exercise and that could be used to answer the research questions. 33 articles with main focus on physical activity or exercise were selected. One article from these was further excluded, as it was published in a "letters" section of the newspaper and written by a reader, and was not therefore representing the voice of the newspaper. Consequently, the final selection consisted of 33 articles - 14 from the *Irish Independent*, and 19 from the *Irish Times*. The process of the search is presented in figure 1, and the list of the selected articles can be found in appendix 1.

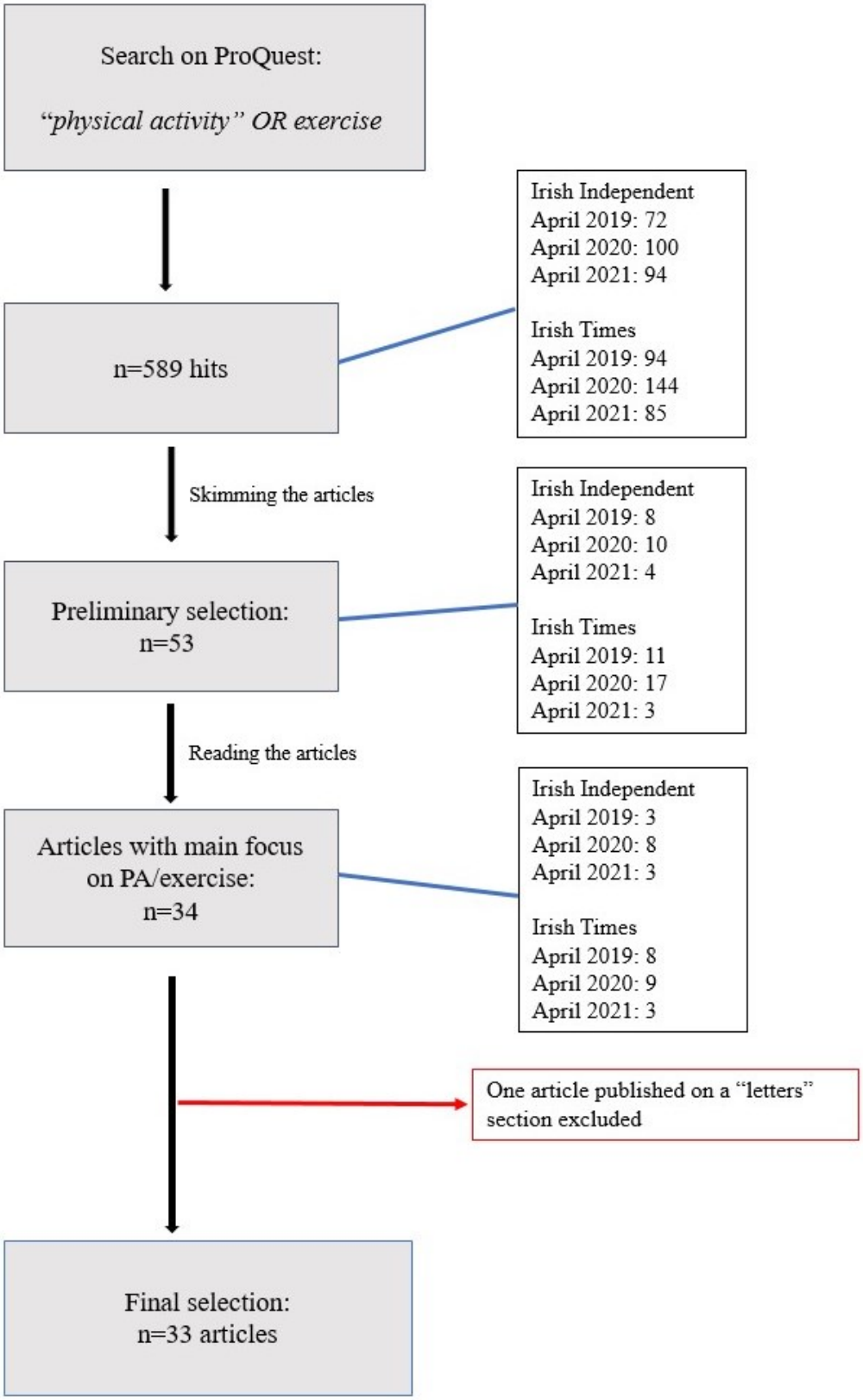

FIGURE 1 Search tree of the data collection.

3.3 Methods of analysis

Both quantitative and qualitative methods of analysis are used in this study. The first part of the analysis focuses on content analysis to detect *what* is said about physical activity in the news, and the second part of the analysis focuses on exploring *how* the articles talk about physical activity, applying framing analysis. This mixed methods approach roughly follows the *explanatory sequential design* that begins by conducting a quantitative phase in the analysis followed by a qualitative phase, which is conducted based on the results of the quantitative phase (Creswell & Clark 2017: 77).

3.3.1 Content analysis

The purpose of the content analysis part in this study is to construct a general overview of the themes that are present in the news articles about physical activity. Content analysis is a method that can be used in both quantitative and qualitative research and it is used for the systematic reduction and interpretation of text or video data (Hsieh & Shannon 2018: 393). It can be described as "the systematic, objective, quantitative analysis of message characteristics" (Neuendorf 2017: 1). In this study, the qualitative part of the content analysis is related to thematic analysis that is a systematic approach to analyse qualitative data, which involves identifying themes or patterns in the data (Mills et al. 2012). A theme captures something relevant about the data in relation to the research question, but the researcher's judgement is needed to determine what counts as a theme (Braun & Clarke 2006: 82). The themes related to physical activity will be constructed using coding. For example, Krippendorff (2013: 275) defines coding as

> *the process of mapping a given set of descriptively unknown but distinct phenomena into descriptive categories, scaling, measuring, or assigning the mutually exclusive values of a variable pertaining to a research question to any kind of observations.*

Therefore, the purpose is to code the different themes that occur in the articles dealing with physical activity and to further construct more general categories by combining these different detected themes if possible. The initial themes that will be coded are not pre-selected, as the goal is to detect all types of themes related to physical activity in the articles. After the coding

process, the themes and their occurrence will be presented quantitatively to form a general overview of the themes related to physical activity, that is, what is said about physical activity in the two Irish newspapers before and during the COVID-19 pandemic.

3.3.2 Framing analysis

The second part of the analysis focuses on exploring *how* the articles talk about physical activity. In this, framing analysis is applied. The focus of this part of the analysis depends on the results of the content analysis, as the purpose is to conduct the framing analysis on the most common theme or themes that are detected in the content analysis.

As introduced previously in the theoretical background, frames determine what is said, how is said, and what is *not* said about the issue at hand, in other words, how a certain issue is framed (Altheide & Schneider 2013: 38-74). To frame means that certain aspects of a certain issue can be selected and promoted to, for instance, define problems, diagnose causes, make moral judgements, and suggest remedies (Entman 1993: 52). In news framing, "media frames work by connecting mental dots for the public" (Nisbet 2010: 47). A connection is suggested between two concepts, issues, or things, so that after encountering the framed media message, people accept or are at least aware of this connection (Nisbet 2010).

Framing analysis has been conducted in many different ways with varying approaches and in different fields of research, so there exists no one "right" way of doing framing analysis. For instance, Reese (2010: 17) states: "given the eclecticism and multiple perspectives, the definitive framing study will never be found". It is the researcher's responsibility to make appropriate choices concerning the framing analysis approach in order to answer the question at hand (Reese 2010: 17). However, even though there exists many variants of framing, "every variant of framing (…) has, as its core, the interpretation of language" (D'Angelo et al. 2019: 18).

According to Van Gorp (2010), identifying framing and reasoning devices is central in framing analysis. The integrated structure of framing and reasoning devices demonstrates how a frame functions to represent a certain issue. Framing devices are elements in a text that function as demonstrable indicators of the frame, whereas reasoning devices are the defining functions of

frames and they form a route of causal reasoning. There are several types of framing devices, for instance, metaphors, historical examples, catchphrases, depictions, visual images, themes, subthemes, types of actors, actions and settings, lines of reasoning and causal connections, contrasts, lexical choices, sources, statistics, charts and graphs, and appeals. (Van Gorp 2010: 91-92).

Among other fields of research, framing has been used in health communication, and one way of framing health messages is to use gain or loss frames. As will be seen later, gain and loss frames are applied in this study as a result of the first part of the analysis, the content analysis, so the concepts of gain and loss frames are briefly presented already in this part. A gain-framed message highlights the benefits of engaging in a particular behaviour, whereas a loss-framed message highlights the consequences of not engaging in a particular behaviour. In terms of physical activity, a gain-framed message could be, for example, "regular exercise can help you lose weight", and a loss-framed message, on the other hand, could be "not exercising regularly can make you gain weight. (Gallagher & Updegraff 2012: 101).

The methodological guideline on conducting frame analysis of news media by Linström and Marais (2012) proposes a 7-step process. The steps 1-4 focus on the data selection, and the steps 5-7 comprise the actual news frame analysis. The steps of the analysis are:

Step 1: Choose a medium / topic
Step 2: Determine a time-frame
Step 3: Draw a sample
Step 4: Identify a unit of analysis.
Step 5: Selection of a frame typology
Step 6: Operational definitions
Step 7: Identifying news frames.

(Linström & Marais 2012).

In this study, the first 3 steps have already been completed in the data collection section of this thesis, so the framing analysis in this case focuses on the steps 4-7.

At step 4, the unit of analysis needs to be identified. A unit of analysis is the entity that is being analysed in the study, and for instance in frame analysis, the unit of analysis is often individual

news articles of a selected newspaper in a selected time period (Linström & Marais, 2012: 29). Step 5, selection of a frame typology basically refers to the selection of frames. The frames can be selected inductively, meaning that the frames emerge as the research progresses, or deductively, which means using news frames identified in previous framing analyses. (Linström & Marais 2012: 29-30). As mentioned earlier, in this thesis, the purpose is to use gain and loss frames, that is, a deductive approach.

Step 6 guides the researcher to provide operational definitions for the selected news frames. Wood (2004: 65) defines operational definitions as "precise descriptions that specify the phenomena of interest". That is, the researcher needs to define how the selected frames can be identified.

After the steps 1-6 have been completed, the process of identifying news frames (step 7) can begin. This means looking for and analysing the selected frames in the data. This part of the analysis includes also identifying framing devices that are elements in a text that function as demonstrable indicators of the frame (Van Gorp 2010: 91). Framing devices can be categorised in different ways, but for instance in the context of *news* framing analysis, Linström and Marais (2012; 33) divide framing devices into rhetorical (and other written/grammatical) devices, and technical devices. Rhetorical devices include, for example, word choices, metaphors, and exemplars. Technical devices, on the other hand, include different elements of news writing, such as headlines, source selection, quote selection, layout, and visuals. It depends on the research problem whether one or several framing devices are looked for. (Linström and Marais, 2012).

4 ANALYSIS

4.1 Content analysis

The analysis of the selected data started with content analysis. The data included 11 articles from April 2019, 16 articles from April 2020, and 6 articles from April 2021 (appendix 1). All selected news articles were read through starting from the articles published in April 2019 followed by articles from April 2020 and 2021. The coding process began with identifying main themes that appeared in each article. As the articles were selected based on their focus on physical activity, physical activity or exercise per se were not coded. Rather, the coded themes were themes that appeared in the articles related to, or besides, the theme of physical activity. The coded themes emerged from the data and were not pre-selected. During the first round of reading of the articles for the analysis, one article was excluded as it focused purely on running and not on physical activity/exercise on a more general level, therefore not serving the purpose of the research questions. As a result, the number of articles in the analysed data changed to 32.

The amount of initially coded themes varied between one and six per article. In the second step, some of these initial codes were combined under a more general theme resulting in 16 different themes. Next, some of the themes were further combined, resulting in eleven groups. The process of coding with the initially coded themes and constructed main themes is presented in table 1.

The most common themes that occured in the articles were *effects of physical activity* and *Covid-19 restrictions*, which were present in nearly half of the articles (Figure 2). Figure 3 and Figure 4 represent the division of the themes between the years of publication. As the amount of articles was rather small, and the sample included different amounts of articles per year, no statistically significant analysis was conducted. However, from these figures the general themes around the topic of physical activity by each year can be seen. For instance, *effects of PA* and *demographics* seem to be common each year, but for example in April 2020, *Covid-19 restrictions* and *PA instructions* played a significant role. From now on in the text, physical activity is often referred to as PA.

TABLE 1 The coding process of the articles. The 11 constructed main themes are presented in the right column. PA=physical activity.

Initially detected themes categorised by larger themes (bolded)		**Sub-themes in the final themes**		**Final themes**
Effects of PA Benefits of golf Effects of PA Effects of exercise	→	Benefits of golf Effects of PA Effects of exercise Inactivity Consequences of inactivity	=	**Effects of PA**
Inactivity Inactivity Consequences of inactivity				
Type of PA Golf Home workout Stretching Walking Weight training	→	Golf Home workout Stretching Walking Weight training Transportation Commute	=	**Type of PA**
Transportation Transportation Commute				
Health Mental health Health Weight	→	Mental health Health Weight Injuries Physiotherapy	=	**Health**
Injuries Injuries Physiotherapy				
Education/Promotion Health promotion School/PE PA promotion	→	Health promotion School/PE PA promotion	=	**Education/Promotion**
Amount/intensity of PA Effort to practice PA Recovery/Adaptation Return to sport Amount of PA Steps Intensity & amount of PA Intensity of exercise	→	Effort to practice PA Recovery/Adaptation Return to sport Amount of PA Steps* Intensity & amount of PA Intensity of exercise Recovery	=	**Amount/intensity of PA**

Recovery				
Covid-19 restrictions Covid-19 restrictions	→	Covid-19 restrictions	=	**Covid-19 restrictions**
Instructions Home workout instructions Instructions	→	Home workout instructions Instructions	=	**PA instructions**
Economy Money Charity Business/Economy	→	Money Charity Business/Economy	=	**Economy**
Older people Older people **Children** Childhood Children	→	Older people Childhood Children Parents	=	**Demographics**
Science Science **Physiology** Physiology Muscles	→	Science Physiology Muscles	=	**Science**
Other Politics Motivation Lifestyle Parents Social connections Technology	→	Politics Motivation Lifestyle Social connections Technology	=	**Other**

*Steps = number/amount of steps; foot movement

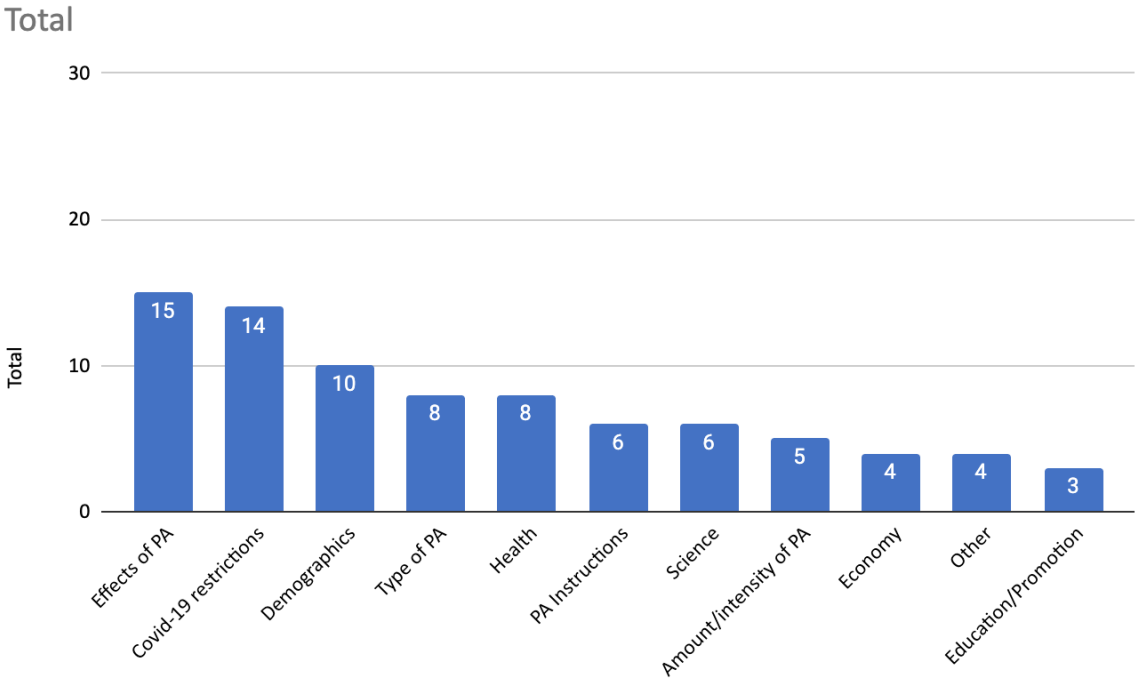

FIGURE 2 Frequency of the coded themes in the articles (n=32). The number represents the number of articles in which each theme was detected. For example, the theme "effects of PA" was detected in 15 out of the 32 articles.

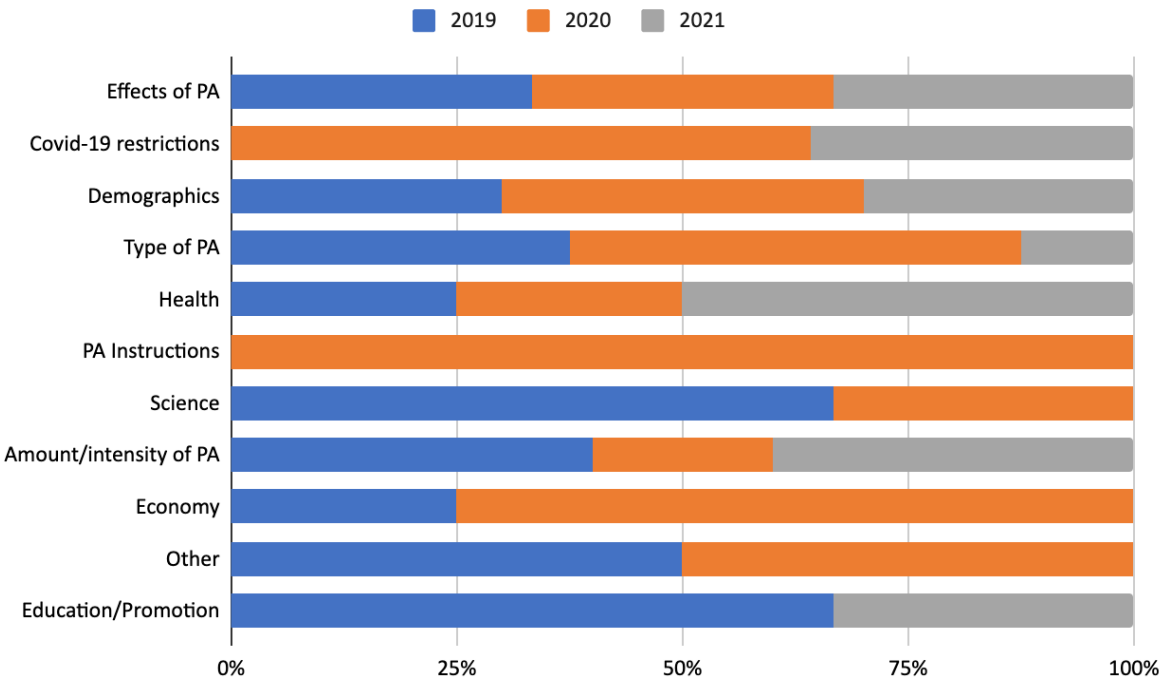

FIGURE 3 The occurrence of the themes by year of publication (April 2019, 2020, and 2021).

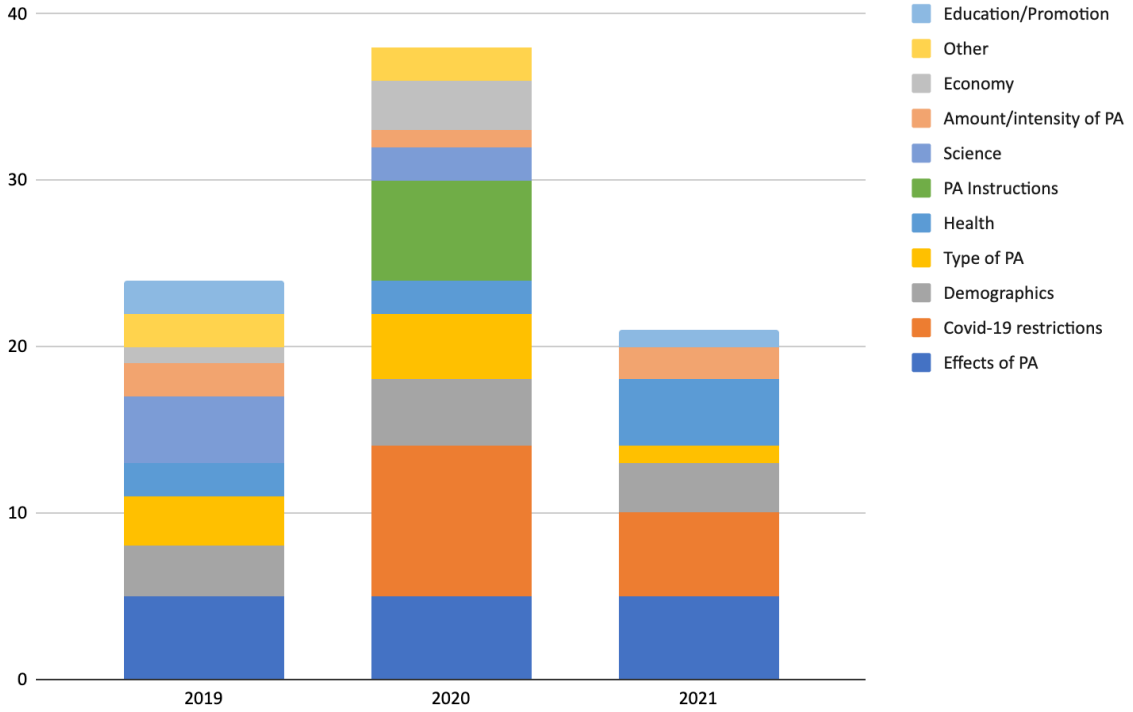

FIGURE 4 Themes by year of publication (April 2019, 2020, and 2021).

4.2 Framing analysis

The second part of the analysis applies framing analysis. The steps of framing analysis were presented in the previous chapter, in section 3.3.2, and this analysis follows that guideline starting from the step 4, since the first three steps have already been completed in the data collection section of this thesis. As the *effects of physical activity* was the theme most commonly occurring in the data, the framing analysis will focus on this topic. A deductive approach of framing analysis is taken, which means using news frames that have been identified in previous framing analyses (Linström & Marais 2012: 29-30). Based on previous research in health communication, the gain- and loss-frames were selected, as they fit well with the topic of *effects of physical activity*. Therefore, the purpose of the second part of the analysis is to identify and analyse gain- and loss-frames in the news articles about the effects of PA.

4.2.1 Steps of the analysis

Step 4, identifying the unit of analysis, was done based on the most commonly occurring theme *effects of physical activity*. The 15 articles, in which the theme of *effects of physical activity* had been identified during thematic analysis, were again read through, and the parts in the texts that somehow discussed the effects of PA were searched and written down for further analysis. Therefore, the unit of analysis for the framing analysis in this case is the theme *effects of physical activity* in the articles of the data.

Steps 5 and 6 include the selection of frames and defining how these selected frames can be identified. In this case, the frames were selected deductively. Gain and loss frames were selected, because they fit well for the purpose of analysing the theme *effects of physical activity* in the news articles. As these are previously existing frames, previously created definitions for the frames are applied as well: a gain-framed message highlights the benefits of engaging in a particular behaviour, whereas a loss-framed message highlights the consequences of *not* engaging in a particular behaviour (Gallagher & Updegraff 2012; 101).

Step 7, identifying news frames. Once the parts of text discussing the effects of PA had been collected from the articles, these excerpts were again read through and classified according to the way they talked about the effects of PA. The primary goal was to identify gain and loss frames in the excerpts, that is, to find excerpts that talked either about the benefits of engaging in physical activity (gain frame) or about the negative consequences of not engaging in physical activity (loss frame). The majority of the excerpts could be classified using gain and/or loss frames, but not all. These "leftover" excerpts will be discussed later in the analysis. One or both of these pre-selected frames were found in 14 out of the 15 articles.

When talking about the effects of physical activity, it was not required that the articles used the word *physical activity*. In fact, *physical activity* was used only once in the identified gain and loss frames. What counted as (engaging in) physical activity was individually judged in each excerpt based on the context. This resulted in several different phrasings and terms, which are presented in table 2. There was not necessarily a verb stating the action of engaging in physical activity, but for instance, a noun was counted as well, if performing physical activity was somehow implied in the excerpt. For example, "a walk", "workouts", and "movement" were

considered as engaging in physical activity. The most common term, "exercise", occurred in the frames from four different articles, while the others listed in table 2 were only in individual articles.

Not engaging in physical activity in the loss frames was similarly expressed in different ways (table 2). For example, "sedentary", "inactivity", "sitting", and "stay in bed all day" were included in this analysis.

TABLE 2 List of expressions that were considered to indicate PA in the analysis of gain and loss frames.

Physical activity / engaging in PA = (gain frame)	**Not engaging in PA = (loss frame)**
"exercise" *"golf" / "playing golf" / "the sport" [golf]** *"practising or going to the gym"* *"staying active"* *"it" [exercise bike]* *"being sweaty and red-faced"* *"getting out seven days a week and hitting her daily target of 10,000 steps"* *"putting one foot in front of the other"* *"walking" / "it" [walking]* *"the more active you are"* *"getting out and moving"* *"moving around"* *"workouts"* *"people who exercised"* *"had exercised vigorously"* *"who had walked"* *"to sweat and strain"* *"a walk"* *"activity"* *"when the muscles are warm"* *"Taking an extra 4,000 steps a day" / "every additional 4,000 steps"* *"people who averaged about 8,000 steps"* *"movement"* *"training"* *"the stronger and fitter you are"*	*"sedentary"* *"inactivity"* *"sitting"* *"zero exercise"* *"stop or reduce how much we exercise"* *"had not exercised"* *"people accumulating 4,000 steps of fewer"* *"stay in bed all day"* *"12-week layoff"* *"not getting out and exercising"* *"not mobilising"* *"The elderly population were usually good at moving, walking into town, the shops, Mass, the hairdressers, or they might go to aquafit once or twice a week - that has all gone"* *"lack of physical activity"*

"to do ranges of movements" *"the aim is functional fitness"* *"if muscles have been trained"* *"weight training"* *"running"* *"balance and physical fitness"*	

*The word in square brackets "[ ]" indicates the word to which the used word referred in the original text.

4.2.2 Gain frame

Gain frame highlights the benefits of participating in a particular behaviour (Gallagher & Updegraff 2012: 101), and in this analysis, the purpose was to look for parts of text somehow highlighting the benefits of participating in PA. This use of a gain frame when talking about the effects of PA was detected in 13 out of the 15 articles.

Effect on what. The positive effects of PA were mentioned in 13 articles. These effects were categorised into eight groups that emerged from the texts based on what PA was said to influence. These initial categories were: 1. Mental health / cognition, 2. Health in general, 3. Feeling good, 4. Fitness / strength, 5. Weight, 6. Physiology, 7. Diseases, and 8. Mortality / living longer. Next, three main categories were formed based on the initial ones. First category was effects related to *mental health / cognitive function*. Perceived well-being, that is the initial "feeling good" category, was also included in this. The second category was named *physiological / medical effects.* In this, were included the initial categories physiology, weight, diseases, and mortality. The last main category was named *physical fitness.*

The most common effects that were mentioned in the articles were related to *mental health / cognitive function*. This category was present in eight articles. When comparing the years 2019, 2020, and 2021, there was some variation in the effect categories (figure 5). For example, in April 2020, the positive influence of PA on *physical fitness* and *mental health / cognitive function* was most commonly emphasised.

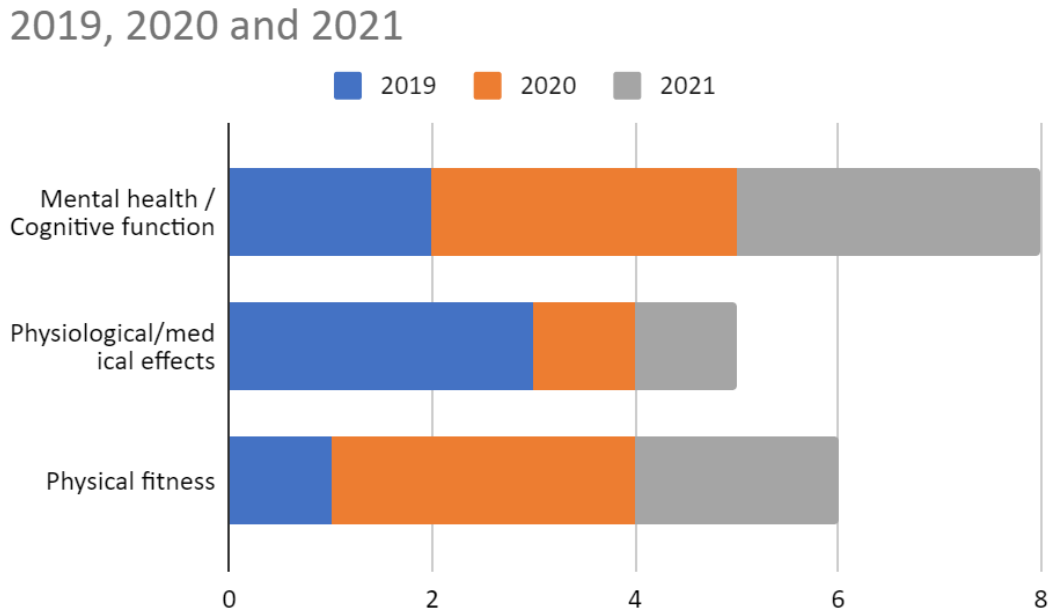

FIGURE 5 Effect categories of the gain-framed messages by year (April 2019, April 2020, April 2021).

Framing devices. As discussed in section 3.3.2, in news framing analysis, framing devices can be divided into rhetorical (and other written/grammatical) devices, and technical devices (Linström & Marais 2012; 33). Rhetorical devices include, for example, word choices, metaphors, and exemplars, whereas technical devices include different elements of news writing, such as headlines, source selection, quote selection, layout, and visuals. (Linström and Marais, 2012).

In this case, the analysis focuses on the gain and loss frames around the theme *effects of physical activity*. Therefore, the general structure and idea of the message in this data can be thought to as "physical activity is beneficial, because…". For this reason, the analysis pays attention to how certain framing devices are used to construct this argument. The chosen framing devices are word choices and source/quote selection. In particular, the purpose is to analyse how the effects of PA are presented, focusing on the use of verbs, adjectives and adverbs. For example, is the message constructed as "physical activity *is always very good* for your health" or is it "physical activity *might be sometimes good* for your health". In addition, the news sources and the question of who is quoted in the news articles are analysed, because these devices can have a great impact on the credibility and effectiveness of the message.

Rhetorical devices. The excerpts talking about the beneficial effects of PA were categorised into "uncertain" or "definite" based on the use of rhetorical devices in the gain frame. The "uncertain" category means that the positive effects were not stated to be certain. The "definite" category, on the other hand, included excerpts that stated the positive effects as certain. From now on, the examples from the data that are presented are written in italics with quotation marks, if the excerpt was a direct quotation in the original article as well. Otherwise, only italics are used.

The uncertainty of the effects were often expressed with the use of modal auxiliary verbs, such as *can* and *may*. For example, the following excerpts demonstrate this:

> *"playing golf can provide significant benefits for the health and wellbeing…"*
>
> *Taking an extra 4,000 steps a day might reduce our risk of dying prematurely,…*
>
> *"…it can help alleviate stress and worry".*

In the first example above, the uncertainty is expressed with the verb choice "can provide". However, this is instantly followed by the adjective "significant", which, in a way, diminishes the first announced uncertainty. This kind of word choice can make the message more convincing without making empty promises, as "can provide significant benefits" possibly sounds better, than for example, "can provide some benefits". Neither of these does not actually promise benefits, so the message is ultimately the same, only framed slightly differently.

Another example from the uncertainty category is:

> *moderate exercise is considered likely to prevent the onset of cognitive decline.*

Here, the uncertainty is expressed with the use of passive voice and adjective *likely*. The use of passive voice in "is considered" makes the information more ambiguous, as it is not stated who considers that. In addition, the verb *to consider*, indicates having an opinion or believing something to be and does not state a fact. However, this type of phrasing ("is considered to") can also be interpreted as an accepted fact, for example in a scientific context, so it probably depends on the reader how convincing one finds this.

More articles and more excerpts expressed the positive effects of PA in a definite way than in an uncertain way. The excerpts that were categorised into the "definite" category used, for instance, unambiguous verbs when talking about the effects:

> *"exercise is good for hearts"*
>
> *for every additional 4,000 steps someone takes in a day, even if it's just ambling around the block or across the room, his or her risk of dying early from heart disease, cancer or any other cause drops by 50 per cent or more.*
>
> *"exercise is crucial to maintaining mental health"*
>
> *" It [walking] prevents and limits osteopenia and osteoporosis."*
>
> *"The brain and body benefits from it [walking]."*
>
> *Regular exercise reduces the risk of heart disease, type 2 diabetes and many other chronic conditions.*

These examples state the positive effects of PA as facts with the use of present tense verbs *is*, *prevents*, *limits*, *benefits, and reduces*. Another occurrence was using the auxiliary verb *will* and addressing the reader directly by using "you":

> *"try to fit in 20 minutes of exercise every day. It will make you feel happier."*
>
> *"The stronger and fitter you are, the more likely you will be to fight coronavirus off, and your recovery time will be shorter."*
>
> *if you walk four miles a day, most days of the week, you'll burn the 2,400 calories that equates to a pound of fat. Do that every week, and you'll burn a pound a week.*

In these examples, the positive effects of PA are, in a way, promised to the reader if the reader performs the activity. Addressing the reader directly makes the message more personal, which possibly makes the effects of PA more realistic to the reader. Using future tense can also create additional hope, as it indicates that the reader does not need to be physically active beforehand, but he/she can still gain the benefits in the future if they start performing the activity.

Adverbs were also used when framing the positive effects of PA in a definite way:

> *"Golf definitely has had a positive effect on my mental health"*
>
> *We know, of course, that physical activity is good for us*
>
> *When the muscles are warm, it's so much easier to focus and concentrate*
>
> *staying active has so many benefits for the entire family*

These words, *definitely*, *of course*, *so muc*h, and *so many* emphasise the benefits of PA. Without them, the excerpts would still inform the reader that PA has positive effects, but using these adverbs modify the message to really highlight the benefits.

Technical devices. Quotes and news sources can be used effectively as framing devices in news discourse. Pan and Kosicki (1993: 60) describe that they can be used in "claiming empirical validity or facticity by quoting experts or citing empirical data, linking certain points of view to authority by quoting official sources, and marginalizing certain points of view by relating a quote or point of view to a social deviant". In this case, the excerpts talking about the effects of PA were analysed based on their source of information and use of quotations.

Direct quotations were rather common in the excerpts about the positive effects of PA. 14 quotes in six different articles were detected. People who were quoted were often some types of experts or professionals related to the topic. For example, in one article, a physiotherapist and a neuroscientist were quoted:

> *"You're getting the cardiovascular benefits, pulmonary benefits for your lungs, and blood pressure improves. It [walking] prevents and limits osteopenia and osteporosis. It's sustainable." (physiotherapist)*
>
> *"The brain and body benefits from it [walking]. On the preventative side, the more active you are, the less likely you are to succumb to a depressive disorder. Getting out and moving gives a boost to how you feel in the moment, which can last for hours or longer." (neuroscientist)*

Benefits of physical activity are rather clearly stated in these parts, and using a direct quote from a professional adds validity to the statements and can make the reader to find it more convincing.

Another example of quoting an expert is a quote from a university professor in an article about a new study:

> *But even now, he said, "all of the athletes showed better function than a normal person off the street, which supports the message that exercise is good for hearts".*

This article had rather detailed and scientific information about the conducted study, so adding a quote from a person who was part of the study group can make the article and its message more approachable to a "normal" reader. In this case, the "take-home message" even of the whole article can be said to be that in the quote: "exercise is good for hearts". Coming directly from an expert (and from a real person) in an easily comprehensible format can be more convincing to the reader than only a (possibly complex) report of the study results.

In addition to experts, some articles also had direct quotes from so-called ordinary people without any expertise or authority status in the case. For example, an 82-year-old woman was quoted:

> *...she thinks it's important to keep healthy and active, "especially as you get older". "(...) We get to do ranges of movements and even play games. I just constantly find myself laughing; it's really fun," she says.*

This type of quotes from "ordinary" people make the stories more relatable for the reader. Hearing positive experiences from someone one can easily relate to, can make it easier to see oneself reaching the same goals and benefits too.

In the excerpts of the data, the sources of information were also often indirectly cited. For instance, scientific research and studies were used:

> *Research has also highlighted that those that play golf live five years longer than those that don't, while the sport has been shown to have self-esteem and self-worth benefits, improving mood, reducing anxiety and boosting confidence.*

Taking an extra 4,000 steps a day might reduce our risk of dying prematurely, even if those steps are not swift, according to a large-scale new study of moving and mortality.

Scientific studies can be considered as official and relatable sources of information, so referring to them when talking about the effects of PA can make the presented information seem more reliable to the reader and, therefore, even be more influential. In some cases, the sources of information about the claimed beneficial effects of PA were not mentioned, but rather presented as common facts, like for instance:

Exercise can help because it releases chemicals in your brain that make you feel good - boosting your self-esteem, helping you to concentrate and feel better.

We know, of course, that physical activity is good for us and being sedentary, for the most part, is not. Regular exercise reduces the risk of heart disease, type 2 diabetes and many other chronic conditions.

A critical reader might start to wonder where this information comes from, but in newspaper articles, it is perhaps acceptable to state this kind of information as common knowledge without listing specific sources. Finally, in some cases, the source of information was clearly the writer her/himself, as the articles were written using a first-person narrative. For example:

Not only has it [exercise bike] been a saviour in lockdown, but I feel stronger and fitter than I have in a long time. In fact, I now identify as someone who quite enjoys exercising.

I've lost a stone in two months and I honestly cannot believe it turned out to be as simple as putting one foot in front of the other. Better again, I'm feeling happier, healthier, more energised, more organised and more inspired

As a source of information, these are similar to the quotes from ordinary people that were presented earlier. Here the writer telling about his/her own experiences comes across as an ordinary, easily relatable person, which can make the topic of physical activity more approachable for many.

In summary, it can be said that the articles used primarily three types of sources of information when talking about the positive effects of PA: experts, research, and experience. All of these can add value in framing the message. Citing experts and research can make the message more trustworthy and official, since they have a certain authority on the topic. Having ordinary people tell about their experiences, on the other hand, can make the topic more relatable, which can motivate the reader to take similar action after seeing that it is possible for "someone like me".

4.2.3 Loss frame

A loss-framed message highlights the consequences of not participating in a particular behaviour (Gallagher & Updegraff 2012: 101). Therefore, in this case, a loss frame was considered to deal with the consequences (or negative effects) of not participating in PA, and the use of loss frame when talking about the effects of PA was detected in six of the fifteen articles.

Effect on what. The three main effect categories that were created earlier with the gain frame were applied here with the loss frame too. The excerpts talking about the negative effects of not engaging in PA were categorised based on the type of effect they mentioned. All of the loss-framed excerpts dealt with the negative effects that not engaging in PA had either on the physiological / medical functions or on physical fitness. That is, the loss-framed messages focused on the second and third effect categories, *physiological / medical effects* and *physical fitness.* Furthermore, none of the loss-framed excerpts highlighted the effects on the first category, *mental health / cognitive function*. The division of the effect categories by year is presented in figure 6.

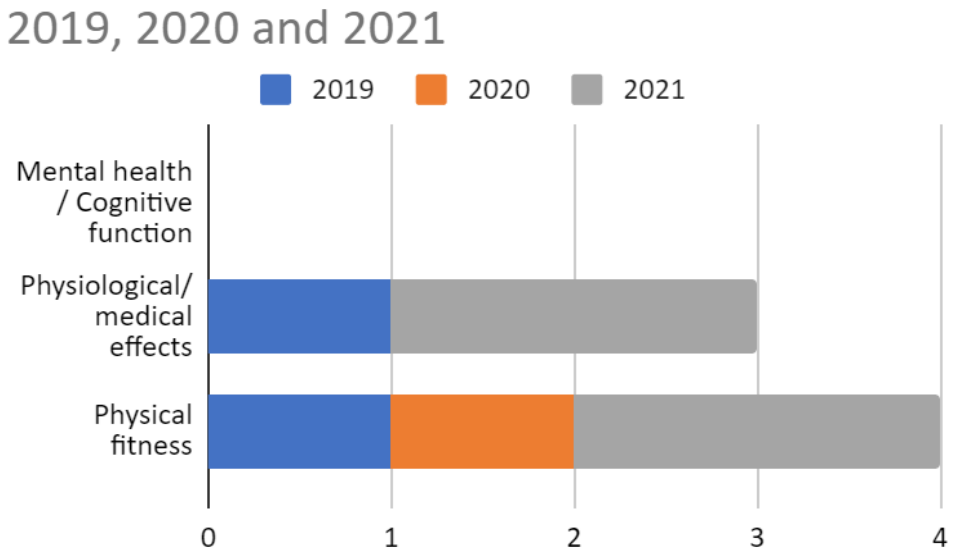

FIGURE 6 Effect categories of the loss-framed messages by year (April 2019, April 2020, April 2021).

Rhetorical devices. The analysis on the use of rhetorical devices began in the same way as what had been previously done with the gain frame; the excerpts that were about the negative effects of not participating in PA were categorised into "uncertain" or "definite" based on their use of rhetorical devices in the loss frame. That is, were the effects of not participating in PA presented as definite or somehow uncertain. Majority of the excerpts presented the negative effects as definite, and only one article had excerpts categorised as uncertain.

The parts categorised as uncertain were:

> *They [people who spend most of their waking hours sitting] <u>often</u> also experience metabolic problems that raise the risk of diabetes and heart disease, including insulin resistance, poor blood sugar control and high levels of triglycerides…*
>
> *Coyle <u>suspects</u> that lengthy sitting increases the body's production of certain undesirable biochemical substances and <u>may hinder</u> the release of other, beneficial substances that normally would be produced during exercise.*

In the first one, the uncertainty was expressed with the use of the adverb "often". In the second one, the verb "to suspect" itself indicates uncertainty, as it basically means to think *likely.* As

was rather common with the gain frame previously, a modal auxiliary verb “may” was again used here (“may hinder”) to express uncertainty.

The excerpts that presented the effects of not participating in PA in a definite way often used unambiguous verbs in doing so:

> *we lose much of our fitness and associated health benefits if we stop or reduce how much we exercise over the years*

> *“...they stay in bed all day in their pyjamas. It's really bad for them: they lose muscle mass fast.”*

The negative effects were often related to a loss or decrease in something. In addition to the use of the verb “lose”, other examples of this are:

> *...the biggest problem he was seeing among older people was loss of power in their thigh muscles as they are not getting out and exercising as much as they would have prior to Covid restrictions.*

> *"A lot of older people, who were perfectly mobile before, are not mobilising as much as they would have previously, they've put on some weight, their energy output has reduced,(...)”*

> *...soaring numbers of older patients presenting with dramatically deteriorated bone and muscle strength because of inactivity.*

> *“That's a long time for a lack of physical activity". Joint mobility, strength, confidence and aerobic fitness have "hugely, hugely declined".*

Compared to the gain frame where future tense was quite often used, past and present tenses were mostly used in the loss frame when dealing with the effects of not participating in PA. The use of past tense can be seen in the previous examples in “they’ve put on”, “has reduced”, “have hugely hugely declined”, as well as in the followings:

> *It turned out, to no one's surprise, that four days of virtually zero exercise had left the students with somewhat sluggish, overtaxed metabolisms.*

But I'd become too cavalier about diet for too long, too sedentary from working too much, and Gerard my body told the tale.

This use of past tense can make the effects seem more serious to the reader, as it indicates that these have actually already happened to someone. For some people it might work as a motivator to be physically active in order to avoid the described consequences, but on the other hand, some might feel more hopeless, and think that this will anyway happen to them too as it has happened to these people. Interestingly, compared to the gain frame, the reader was not directly addressed in the excerpts about the negative effects of not being physically active. The messages were not formed as, for example, "*you will* lose your muscles if you don't exercise", whereas in the gain frame there were cases like *"try to fit in 20 minutes of exercise every day. It will make you feel happier.".*

Technical devices. Similarly to what had been done with the gain frame, the excerpts talking about the effects of not participating in PA were analysed based on their source of information and use of quotations. Direct quotations from experts were used in three of the six articles. For example:

"A lot of older people, who were perfectly mobile before, are not mobilising as much as they would have previously, they've put on some weight, their energy output has reduced, this is not just older people but once you reach 40 you lose 2 per cent of your muscle mass every year," he said.

...said she was witnessing a "huge decrease in people's physical fitness. The elderly population were usually good at moving, walking into town, the shops, Mass, the hairdressers, or they might go to aquafit once or twice a week - that has all gone," she said.

In these, a general practitioner and a physiotherapist are quoted. They can be considered as experts in the topic at hand, and using direct quotations from experts can make the message more convincing to the reader. In these cases, the experts are describing what they have encountered in their work, which can also make the situation seem more realistic and serious to the reader, compared to if the same information was simply reported by the writer.

Science and research were also used as a sources of information. One article was about a new study, so the information along the text can be assumed to be based on that study, even though not explicitly stated at all times, for instance:

> *Inactivity, meanwhile, has almost the opposite physiological effects. People who spend most of their waking hours sitting face heightened risks for many chronic diseases. They often also experience metabolic problems that raise the risk of diabetes and heart disease, including insulin resistance, poor blood sugar control and high levels of triglycerides, the fatty acids from food that linger in the blood if they are not metabolised.*

In the same article, a professor from the study group was also used as source of information, which can make the message more approachable and credible as it is linked to an actual person instead of a study report only:

> *[the professor of kinesiology] suspects that lengthy sitting increases the body's production of certain undesirable biochemical substances and may hinder the release of other, beneficial substances that normally would be produced during exercise.*

Science was used as a source in another article as well, though in a rather interesting and ambiguous way:

> *We know from other science and disheartening personal experience that we lose much of our fitness and associated health benefits if we stop or reduce how much we exercise over the years.*

Here, the "science" is not specified, but rather used as common knowledge (*"we know"*) and as a convincing-sounding word. Some readers might start to question this and wonder if they should actually be familiar with this "other science", but others might happily accept it, be convinced, and keep reading.

Finally, ordinary people and their personal experience were also used as a source of information in the loss frame excerpts. In the example above, the source is the reader's, and everyone's in

general, experience: “we know from (...) disheartening personal experience”. In another article, the writer was telling about her own experiences:

> *But I'd become too cavalier about diet for too long, too sedentary from working too much, and Gerard my body told the tale.*

As have been analysed already with the gain frame, using ordinary people’s experiences as a source of information can make the message feel more relatable to the reader. With the loss frame, it can make the negative effects of not practising PA seem more realistic and even frightening, as the reader can more easily think that this can happen to “someone like me”.

4.2.4 The leftovers

Previously in the analysis (section 4.2.1), the excerpts have been classified according to the way they discussed the effects of PA. The main purpose was to identify gain and loss frames, which were analysed in the sections above. However, not all excerpts could be classified into gain or loss frame categories, and as a result, four other categories emerged as well. These categories will be shortly presented here.

One of the categories was having both gain and loss frames in the same excerpt. That is, the positive effects of participating in PA and the consequences of not participating in PA were both present in the same sentence or paragraph in the article. For example:

> *Just 15 minutes of activity a day is all it takes to kick-start the endorphins and adrenalin, to wake up the muscles and fibres that can become dormant throughout the day sitting in a classroom.*

> *For me, regular, consistent exercise has always been the key to keeping slim. Without it, my metabolism seems to pack in altogether.*

Another category of the way of dealing with the effects PA that emerged was focusing on the negative effects of PA. Excerpts from three different articles were identified with this point of view, for instance:

"Be careful. You don't want to get injured and put the health service under more strain."

"They will have lost their balance and will injure themselves by trying to do too much activity after a long time at home," said the physiotherapist.

The previously analysed gain frame had highlighted the positive effects of PA, so it is noteworthy to state that these opposing views dealing with the negative effects of PA were also present. In relation to this, the third category that emerged had excerpts that dealt with both the positive and negative effects of PA:

Tiger Woods might have suffered terrible physical problems because of the violence of his swing, but the game also helped him overcome mental stresses that saw his world fall apart

...some people presenting at his practice were exercising every day without taking time for recovery. "It feels good at the start, almost addictive and it's one of the only things people can do," he said. "But at some stage something will go wrong, because the body needs to recover as well."

In these examples, both negative and positive effects of PA are presented, so the reader is, in a way, given arguments on both sides. This makes the message more neutral, as it does not deal only with the benefits or only with the negative effects of participating in PA, but provides information on both leaving the decision on whether PA is more good or bad to the reader.

The fourth emerged category included excerpts that did not specify whether the presented effects of PA were considered positive or negative. For example, the following excerpts does not tell whether these changes caused by PA in the heart are a good or a bad thing:

Regular exercise changes the look and workings of the human heart. The left ventricle, in particular, alters.

Finally, the majority of the articles had excerpts that somehow dealt with the effects of PA, but which could not be categorised. Some had, for instance, wondering questions about the effects of PA:

> *Is sitting unhealthy for us primarily because we are not exercising when we are sitting? Or does sitting have its own unique effects on our bodies and, if so, could those outcomes somehow alter or even overpower the positive contributions of exercise?*

> *So, it [this study] cannot tell us whether taking more steps caused people to live longer, only that the two were associated with each other.*

In summary, the excerpts dealing with the effects of PA could, in the majority of the cases, be identified having used either a gain or a loss frame. In this data, gain frame was used more often compared to loss frame. However, other ways to discuss the effects of PA were identified as well. These included combining the use of a gain and a loss frame, dealing with negative effects of PA instead of positive, dealing with both positive and negative effects of PA, and not specifying whether the effects of PA were considered positive or negative.

5 DISCUSSION

The purpose of the analysis was to look into how physical activity is presented and framed in the *Irish Independent* and *Irish Times* before and during the COVID-19 pandemic. The analysis consisted of two main parts: content analysis and framing analysis. The content analysis revealed that the most common themes related to PA that occurred in the articles were *effects of physical activity* and *Covid-19 restrictions.* Altogether 11 different occurring themes were identified in the articles, and some variation in the themes occurred between the years of publication (April 2019, April 2020, and April 2021). For example, *effects of PA* and *demographics* were almost equally common each year, but for instance in April 2020, *Covid-19 restrictions*, *PA instructions,* and *economy* played a significant role.

As the most common theme was *effects of PA*, the framing analysis focused on that theme. Gain and loss frames were selected as the frames to be analysed, since they suited well for the theme effects of PA. When a gain frame is used the message highlights the benefits of engaging in a particular behaviour (Gallagher & Updegraff 2012; 101), which in this case meant engaging in PA, whereas a loss-framed message highlights the consequences of not engaging in a particular behaviour, in this case, not being physically active. The analysis showed that gain and loss frames were used in the majority of the excerpts that dealt with the effects of PA, gain-framed messages being more popular. Different rhetorical, for instance word choices and verb tenses, and technical devices, such as direct quotes and sources of information, were used to construct the frames.

5.1 Themes around PA and the variation before and during the pandemic

Based on this study the most common themes related to PA that occurred in the articles of the *Irish Times* and the *Irish Independent* during April 2019, 2020, and 2021 were *effects of physical activity* and *covid-19 restrictions*. Various different themes were identified in the articles dealing with PA, indicating that PA is treated in the newspapers from versatile perspectives. The themes related to PA are discussed in the following, but it should be noted that in this data, the number of articles dealing with PA was notably higher in April 2020 (n = 16) compared to the articles in April 2019 (n = 10) and April 2021 (n = 6). This can partly explain the variation in the themes between the different years, but it also indicates that PA

seemed to have become a more popular topic in the newspapers at the beginning of the pandemic.

Effects of PA was equally common each year, which indicates that it is probably a theme that rather naturally appears when dealing with PA. Naturally, the theme *Covid-19 restrictions* did not yet even exist before the pandemic in April 2019, and despite that it was the second most common theme all the data sample years combined. It was clearly the most commonly occurring theme in April 2020, and in April 2021, it still shared the top position with *effects of PA*. Ireland was in the first lockdown period in April 2020 meaning that all indoor and outdoor sporting activities, for instance, were cancelled and people were told to stay at home (Kennelly et al. 2020). This naturally had a great impact on people's PA behaviour as well, which explains the high occurrence of the theme *Covid-19 restrictions* in the newspaper articles dealing with PA. In relation to this, the theme *PA instructions* was the second most common theme in April 2020, and it was actually the only year in the data sample this theme occurred. The popularity of newspapers writing PA instructions especially in April 2020 can possibly also be explained by the lockdown, as people were forced to stay at home, so home-workouts were in many cases the only option to exercise, so the newspapers probably provided this type of instructions more than usually during the lockdown. The pandemic and the beginning of lockdown can also partly explain why the number of articles dealing with PA was notably higher in April 2020 compared to 2019 and 2021, since people were suddenly not able to move and be physically active. Perhaps the possibility of being physically active had previously been taken for granted, but when it became greatly restricted, people, and the media, realised what they were missing. In a way, reflecting an effect of people not appreciating something until it is gone.

Before the pandemic in April 2019, *science*, including articles dealing with, for instance, physiology or scientific research, was the second most common theme, but played only a minor role in the two following years. Perhaps topics related to science were proportionally decreased during the pandemic, since the previously discussed themes, *Covid-19 restrictions* and *PA instructions*, became the "hot topics". From the other detected themes, *economy* and *politics* could be mentioned too. These topics were not common in the articles dealing with PA, even though, at least from a public health promotion point of view, PA could easily be a topic relevant to politics and economy. However, according to this study, the Irish newspapers do not seem to highlight this aspect of PA. Articles focusing on professional sports were excluded in the data collection, which can also partly explain why politics or economy were not common themes in

the data. In fact, eventually, *politics* was categorised into the main theme *other* as it was detected only in one of the articles.

The findings of the current study should also be discussed in relation to previous related research. Davis et al. (2020) analysed the media and organisational discourse on PA in US newspapers in 2019. Their analysis showed that the media articles focused on the impacts of physical activity on physical health (67% of media articles), and less attention was given to mental health (31%), overall wellbeing (29%), and social connections (17%). They argue that the public are already aware of the benefits of PA on physical health, so this type of newswriting fails to bring the public's attention to PA's effects on mental health, cognitive function, or relationships. Therefore, they suggest that other benefits of PA, especially those that are not top of mind for the public, should be highlighted more. (Davis et al. 2020).

In the current study, the theme *effects of PA* was analysed focusing on the use of gain and loss frames. In the analysis, three effects categories were formed based on what impacts of PA were mentioned, and these categories were *mental health / cognitive function*, *physiological / medical effects,* and *physical fitness.* When gain frame was used, benefits of PA on *mental health / cognitive function* were most often mentioned in the articles, whereas in lost frame, the excerpts focused only on *physiological / medical effects* and *physical fitness*. The finding that *mental health / cognitive function* was the most common effect category in the gain frame can be therefore interpreted as a positive finding in relation to the study by Davis et al. (2020).

Based on this data sample, the Irish newspapers successfully highlight various benefits of PA and not only the evident effects it can have on physical health. The data sample was small, so statistical comparison between the different years (2019, 2020, 2021) could not be performed, but it should be mentioned, however, that the proportion of articles mentioning the effects of PA on *mental health / cognitive function* was greater in April 2020 and 2021 compared to 2019. One explanation to this can be the Covid-19 pandemic, as due to the restrictions and wide lockdowns, people were socially isolated in their own homes that had a negative impact on people's mental health in Ireland (Kelly 2020), so mental health was perhaps a prominent topic in the news media in general extending to articles about PA as well.

Williamson et al. (2020) conducted a scoping review of PA messaging that refers to the overall process of designing, creating, and delivering PA messages. They found consistent evidence suggesting that PA messages should be gain-framed and should highlight short-term outcomes especially related to social and mental health. In addition, the evidence suggests that message content should be tailored or targeted to the recipients, and that formative research, psychological theory and/or social marketing principles should be used when developing messages (Williamson et al. 2020). In the context of national newspapers, like the *Irish Times* and the *Irish Independent* that were used in this study, tailoring or targeting a message to a very specific audience is not necessarily purposeful, as the readership can be very diverse. The other findings by Williamson et al. could, however, be applied in the newspaper-context as well.

This current study did not analyse whether the news articles dealing with the effects of PA highlighted the short- or long-term outcomes, but the outcomes, that is the effects on what PA was said to influence, were categorised resulting in three main categories: *mental health/cognitive function*, *physiological / medical effects*, and *physical fitness*. *Mental health / cognitive function* was the most common category occurring in the gain-framed messages. Based on the findings of Williamson et al. (2020) this is a positive phenomenon in terms of the effectiveness of PA messaging. They suggest that the effectiveness of highlighting short-term outcomes, especially those related to mental health, may relate to social marketing, which involves presenting a product in exchange for a cost. Effective marketing of such a product includes making the product as appealing as possible to the individual. In the case of PA, that is the product, it can be more appealing if immediate effects of buying the product (= participating in PA) are highlighted. (Williamson et al., 2020: 9-10).

5.2 Use of gain and loss frames

A meta-analytic review by Gallagher and Updegraff (2011) investigated the health message framing effects on attitudes, intentions, and behaviour. They compared gain- and loss-framed messages, but they did not detect a significant effect of framing on the persuasiveness of health messages when persuasiveness was assessed as either attitudes towards the behaviour or intentions to perform the behaviour. However, a significant effect was observed in studies that used measures of actual behaviour; gain-framed health messages were significantly more likely

to promote prevention behaviour compared to loss-framed messages. Among the different health domains studied, this difference in the persuasive effects was most apparent in smoking, skin cancer behaviour, and physical activity. (Gallagher & Updegraff 2011).

These results support the findings of the current study, as gain-framed messages about the effects of PA were found to be more common compared to loss-framed ones. Therefore, using a gain frame when talking about the benefits of PA in the newspapers could possibly have a stronger influence on people's PA behaviour compared to if a loss frame was used. Consequently, this is noteworthy from a health promotion point of view as well, if using gain-framed messages could get people more active leading to further health benefits.

However, not all studies support the belief that gain-framed messages would, in practice, be more persuasive for encouraging disease prevention behaviour than loss-framed messages. In a meta-analysis of 93 studies, O'Keefe and Jensen (2007) detected only a small advantage for gain-framed appeals for encouraging disease prevention behaviour and they conclude that "one cannot expect that using a gain-framed appeal rather than a loss-framed appeal will make much difference to the success of such messages (O'Keefe & Jensen 2007: 634). Nevertheless, even though gain-framed messages would not be more effective in changing people's health-related behaviour than loss-framed messages, the reviews have shown that they are at least equally persuasive. Therefore, preferring gain framing with messages dealing with the effects of PA in newspaper articles, and in general, over loss framing can still be justified, as gain-framed messages might have a stronger persuasive effect especially in the domain of PA as discovered in the study by Gallagher and Updegraff (2011: 109). In addition, for example, Williamson et al. (2020) suggest that PA messages should be gain-framed based on their scoping review of PA messaging.

Why might gain-framed messages be more effective then? Williamson et al. (2020: 9) propose that gain-framed messages may be more effective than loss-framed messages in promoting PA partly because gain-framed messages have a greater ability or likelihood to include information targeting psychological determinants of PA. Latimer et al. (2008) detected that repeated exposure to gain-framed messages about PA resulted in greater PA than loss- or mixed-framed messages. The framing effects emerged only at the week 9 of the follow-up, suggesting that it might have been due to the greater exposure to the messages that the participants began to think deeply about the message information, which then resulted in greater PA. On the other hand,

Jones et al. (2003) detected that people who received a gain-framed message from a credible source (medical doctor) reported increased exercise intentions and behaviours compared to those who received loss-framed messages or messages from a non-credible source (student). Their findings suggest that the message source can have a significant impact on an individual's intentions to perform a certain behaviour, therefore, the message effect could be significantly improved by establishing a good match between the used message source and frame (Jones et al. 2003).

Entman (1993: 52) states that frames have four functions: to define problems, to diagnose causes, to make moral judgments, and to suggest remedies, but a single frame does not necessarily include all of these. Dan and Raupp (2018) called these framing functions *problem definition*, *causal interpretation*, *treatment recommendation*, and *moral evaluation* in their review on frames in health-risk reporting in news. They categorised gain and loss frames as procedural, saying that they do not immediately relate to any of the four framing functions. Rather, their purpose is to cast information relating to treatment recommendation in either a positive or negative light. Their analysis also revealed that research on media coverage of health risks has been most interested in frames relating to the framing function *problem definition*, but they see this prioritisation of causes over treatments problematic, since "in the absence of reporting on the respective solutions to problems, this type of reporting may be unable to increase people's self-efficacy (...)" (Dan & Raupp 2018: 17). In the current study, these framing functions were not analysed, but based on the amount of gain and loss frames detected in the data, it seems that *treatment recommendation* is at least somehow rather often present in these Irish newspapers when PA is discussed. In the case of PA, inactivity can be seen as the health-risk, so the gain and loss frames cast information relating to how inactivity can be treated, that is, information relating to being physically active. Therefore, referring to Dan and Raupp's (2018) thought, providing this type of information could increase people's self-efficacy, and further promote physical activity.

In this study, rhetorical and technical devices of the detected gain and loss frames were analysed. From a PA and health promotion point of view, using a gain frame that expresses the positive effects of PA in a definite way would perhaps be more effective in persuasiveness to getting people to be more active compared to, for example, loss framing. How then, could the "ultimate" gain frame be constructed in terms of rhetorical and technical devices?

The analysis showed that the gain-framed excerpts often used unambiguous verbs, addressed the reader directly, and used emphasising adverbs. In the gain frame, present tense was sometimes used, which can have a rhetorical effect. Present tense is not as commonly used in English as the simple past, but it can be used, for instance, for emphasis or to refer to actions or states that are considered to be always happening (Fahnestock 2011; 154-155). It is used rhetorically to express shared truths, to express presumptions about human behaviour, and to report generalisations about the natural world, for example (Fahnestock 2011: 155). In the case of PA, this could be used when talking about the benefits of PA, for example "PA is good for your health", which can be considered as a generally accepted truth. That would be, however, a rather vague expression, but the rhetorical power of the present tense could also be used in more specific benefits, for instance, "PA makes your brain function more effectively", which can be a more concrete and motivating piece of information for someone.

The reader was often directly addressed in the gain frame using the pronoun *you*, which can have persuasive effects (Fahnestock 2011: 279-280). The implicit *you* is practically always present in a text, so the personal pronoun does not need to appear. Therefore, using *you* can draw attention to the reader and invites the reader to imagine himself or herself in a particular situation (Fahnestock 2011: 280). For example, writing "*you* are stronger, if *you* exercise" instead of "people are stronger, if they exercise" could be more effective in persuading the reader to exercise, as the direct *you* makes the reader to imagine him/herself being stronger and exercising, which could work as a motivator to actually exercise. On the contrary, addressing the reader directly using *you* combined to a negative characterisation of the addressee can be risky and create a degree of discomfort for the reader (Fahnestock 2011: 282). This might explain why the analysis in this study detected that in the loss frame, that is in excerpts dealing with the negative effects of not participating in PA, the reader was not addressed directly like he/she was in the gain frame, where the excerpts dealt with the positive effects of PA.

The analysis of this study also showed that primarily three types of sources of information were used when talking about the positive effects of PA: experts, research, and personal experience. Research indicates that using a high-credibility source is more persuasive than a low-credibility source in changing attitudes and behaviour (Pornpitakpan 2004). The beneficial effect of a credible source has also been detected in exercise intention and behaviour (Jones et al. 2003). Therefore, using experts, such as medical professionals or researchers, or evidence-based research as the source of information in the news articles dealing with PA can be an effective

add to the persuasiveness of the message. Using ordinary people's personal personal experiences as the source of information, on the other hand, can also be effective in influencing beliefs and behaviour. Success expectancy, meaning how well an individual believes to achieve a certain goal, might be an important mediator between self-efficacy and health behaviour intention (Kim et al. 2019). One factor explaining this can be the effect of source similarity; if people see that similar others have succeeded in something, they might start to believe in their own abilities to achieve the same goal (Kim et al. 2019). Thus, using ordinary people's experiences in the news articles about PA, could make the topic more relatable to the reader and make them believe in their own abilities to be more physically active.

Based on these findings, a gain frame that uses unambiguous verbs in present tense, uses the pronoun *you* in addressing the reader, and has subject-related experts and/or ordinary people as the sources of information could be an effective way to form messages dealing with PA. These framing devices were quite often applied in the articles dealing with the *effects of PA* in the *Irish Independ*ent and *Irish Times*, but combining all these devices together could have a greater influence on people's PA attitudes and behaviour, which would be relevant in practice from a public health and health promotion point of view as well.

5.3 Limitations

This study has a number of limitations. The data sample was rather limited as the data was collected only from the month of April of three consecutive years. Therefore, the results cannot be generalised to represent the situation before and during the COVID-19 pandemic in general. However, as the amount of data had to be kept within reasonable limits for a Master's thesis project, the data was collected only from one month each year based on the beginning of the pandemic. The limited amount of data also made statistical comparison between the different years impractical.

The two selected newspapers, the *Irish Times* and the *Irish Independent*, also do not represent all the Irish newspapers, even though they are the two most popular national newspapers. To reach a more general understanding of the representation of PA in the Irish newspapers more newspapers, including smaller local newspapers, should be included in the data.

Content analysis was applied in the first part of the analysis in this study, and even though it aims to be a systematic and objective method, the objectivity cannot be guaranteed. The coding process can be influenced by the researcher's subjective views, and in this case, the reliability of the coding, or intercoding reliability (e.g. Hsieh & Shannon 2018), could not be tested as there was only one person performing the coding. Therefore, the analysis could result in different interpretations if other researchers would analyse the same data.

The framing analysis conducted in this study was also limited, as it was performed only for the most common theme occurring in the articles, *effects of PA*. Conducting framing analysis for all the articles dealing with PA would have provided interesting information about how PA is framed in the Irish newspapers, but the workload would have been excessive for a Master's thesis project. Thus, it was decided to focus only on the most commonly detected theme and on two suitable predetermined frames that were gain and loss frames.

5.4 Conclusion

This Master's thesis analysed the coverage of physical activity in the two largest national newspapers in Ireland before and during the COVID-19 pandemic. The analysis revealed that PA was treated in various perspectives in the articles, but the two clearly most common themes that occurred in articles dealing with PA during April 2019, April 2020 and April 2021 were *effects of physical activity* and *Covid-19 restrictions*. The pandemic influenced the coverage of PA in the newspapers, which was seen, for example, in the high occurrence of the theme *PA instructions* as well as in the higher number of articles dealing with PA in April 2020, at the beginning of the pandemic.

Framing analysis revealed that gain and loss frames were commonly used when discussing the *effects of PA* in the articles. Gain frame was used more often, which can, according to previous research, be a more effective way to form health messages. Therefore, from a health communication and a health promotion point of view, the common use of a gain frame in the Irish newspapers can be interpreted as a positive phenomenon.

As no previous research on the coverage of PA in the Irish newspapers was found at the time when this thesis was written, this study provides novel information on the topic. Further

research with larger data is needed to get a better understanding on how PA is treated in the news media. Among traditional newspapers, other media outlets should be studied as well, as the news media is extensively online nowadays. The way news and media present health topics, such as PA, can have an impact on people's health-related beliefs and behaviour, so this type of research can be important from a public health perspective too.

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APPENDIX 1 List of articles in the data

List of the 32* articles that were included in the data. The articles are organised in a chronological order by date of publication.

Year	Date	Newspaper	Author(s)	Article
2019	Apr 9	Irish Independent	O'Regan, E.	Leo 'better at press-ups', admits Harris.
2019	Apr 9	Irish Times	Reynolds, G.	Reynolds, G. (2019, Apr 09). Weight training can roll back the years for older people: Muscle mass, better mobility and mental sharpness among the positive results.
2019	Apr 10	Irish Times	Pope, C.	Many parents too busy to take children to sports.
2019	Apr 11	Irish Times	O'Sullivan, S.	The daily mile should be in every school.
2019	Apr 16	Irish Times	Reynolds, G.	The heart of it – running versus swimming: Exercise is good for the heart, but different sports give different effects
2019	Apr 18	Irish Independent	Keogh, B.	It's official: Golf is good for you
2019	Apr 20	Irish Independent	Ryan, S.	No uphill struggle with e-bikes: Getting help in saddle makes commuting easier, cuts costs and is tax-efficient.
2019	Apr 23	Irish Times	Thompson, S.	Lifestyle medicine is a journey that lasts a lifetime.
2019	Apr 23	Irish Times	Reynolds, G.	Sitting may sabotage benefits of exercising: Study shows if we sit too much, our workouts may lose some of their expected punch.
2019	Apr 30	Irish Times	Reynolds, G.	Brief workouts may have good legacy effects: Lasting health benefits found in exercising on a temporary basis.
2020	Apr 2	Irish Times	McGarry, P.	'On the bike I meet no one,' says 78-year-old cyclist who refuses to be cocooned in his home
2020	Apr 6	Irish Independent	Byrne, S.	A grand stretch in the evening
2020	Apr 6	Irish Times	McClements, F.	North may ban outdoor exercise if rules flouted

2020	Apr 7	Irish Times	Kale, S.	‘One press-up is better than none’: How fitness gurus stay healthy at home during lockdown: How do you stay active when the gyms are shut? davina McCall and others explain their secrets
2020	Apr 7	Irish Times	Reynolds, G.	Your ‘muscle memory’ may keep you fit: Muscles may ‘remember’ in ways that will allow us to regain strength once gyms reopen
2020	Apr 8	Irish Independent	Cuthbertson, A.	Paris bans outdoor exercise between hours of 10am and 7pm: FRANCE.
2020	Apr 8	Irish Times	Croke, R.	Fitness industry seeing some positives in the crisis: Orders of home gym equipment rise sharply while commuters look at the e-bike option
2020	Apr 13	Irish Independent	Byrne, S.	Keep it in the family let the kids join in: This week's basic workout can be modified to suit different members of the household, writes Siobhan Byrne
2020	Apr 14	Irish Times	Reynolds, G.	Reduce the risk of death in 4,000 easy steps: Results of a large-scale study finds that benefits are not linked to intensity of exercise
2020	Apr 14	Irish Times	Williams, Z.	Equipment-free exercises designed to keep you fit during the lockdown: Theoretically, you could wake up in four months’ time looking like a creature of myth
2020	Apr 15	Irish Independent	Nicholls, D.	UK veteran's (99) garden walk raises €3.4m for NHS 'heroes'
2020	Apr 20	Irish Independent	Byrne, S.	Building a home gym: This week, Siobhan Byrne adds some weight and recommends some key pieces when it comes to home-workout equipment
2020	Apr 20	Irish Times	Bowers, S.	‘I want to be fit enough to see my 83rd birthday’: Age and opportunity and Men’s sheds are keeping older people on their toes
2020	Apr 23	Irish Independent	Ryan, P., O'Connell, H., & Schiller, R.	Older people to be allowed out for limited daily exercise: Older people will be allowed to exercise as lockdown relaxed
2020	Apr 24	Irish Independent	Verney, M.	Pushing it: Why I'm hoping to do my bit with 1,000 press-ups in one hour
2020	Apr 27	Irish Independent	Byrne, S.	Staying strong in lockdown: Bodyweight workouts are the way to go while the gyms are closed, writes our fitness
2021	Apr 5	Irish Independent	Nolan, L.	No strict diet, no crazy exercise regime: I walked off my covid stone in just 10 weeks - and so can you'

2021	Apr 5	Irish Times	Burns, S., & Hutton, B.	Older people will need rehab after lockdown as fitness levels plummet, GP warns: Doctor tells older patients to clear back gardens and to walk around repeatedly
2021	Apr 17	Irish Independent	O'Connor, A.	My experience of sport and PE in school was so demoralising I simply didn't exercise for years'
2021	Apr 26	Irish Times	Hutton, B.	Locked-down elderly facing ‘tsunami’ of health problems: Physiotherapists say older people are experiencing a range of difficulties
2021	Apr 26	Irish Times	Hutton, B.	Case study ‘It breaks you’: A keen sportswoman on her physical decline during lockdown
2021	Apr 27	Irish Independent	O'Regan, E.	Build up fitness or face plague of injuries, says physio: EXERCISE

*One article was excluded from the original 33 articles at the beginning of the analysis as explained in section 4.1. This excluded article is not included in the list above.