How Does One's Season of Birth Influence Television- and Music-Genre Preferences? And Why?

An Exploratory Analysis

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Abstract
This study investigates the influence of season of birth on preferences for music- and television genres later in life. As early as in 1994, Wolfram Peiser and I had published survey data showing that people with fewer summer months during their first half year after birth in Germany tend to be less cheerful. In the meantime, an impressive body of research has accumulated similar evidence also for other countries in the north of the northern hemisphere. In a recently published study, I had applied mood-management theory to show that media content may be used to alleviate less cheerfulness due to one's birth climate in the Middle East and in North Africa as well. This article further explores such a benefit of media use with a secondary analysis of a large and representative survey in Germany. The study reveals that people with more winter months soon after birth tend to prefer "mainstream" entertainment offerings a little more —even after age, education and gender are controlled for. In addition, age shows significant moderating effects.

Does our month of birth have an impact on us later in life? Believers in horoscopes are convinced of it. But we do not need astrology to make this point: An impressive body of scientific evidence from Europe, East Asia and the U.S. has revealed all kinds of effects of when in the course of a year one was born. A recent analysis of large surveys from the MENA region (Middle East and North Africa) showed that one's season of birth even influences the *media genres* one prefers (Schoenbach, 2018). The following article further explores this effect—with a secondary analysis of a large and representative survey in Germany.

So far, our knowledge about the impact of one's season of birth has originated almost exclusively from biology, medicine, psychiatry and neuroscience (overviews, e.g., in Zhang et al., 2019; Schoenbach, 2018; Mar-

tinez-Bakker et al., 2014, and Axt & Axt-Gadermann, 2004)–sometimes based on huge datasets (e.g., Lewis et al., 2021). As examples, just a few more recent results: People born in spring or early summer of the north of the northern hemisphere—compared to those born in the fall and early winter—have a significantly higher chance to die of a cardiovascular disease (Uji et al., 2021; Zhang et al., 2019). They suffer slightly more often of macular degeneration (Longo et al., 2017), autoimmune Adisson's disease (Pazderska et al., 2016) and coeliac disease (Namatovu et al., 2016).

But also certain *personality traits* are related to one's season of birth. Again, some examples: There is ample evidence that early-spring-born babies have a greater tendency to develop schizophrenia (Hori et al., 2012). But in a fascinating U.S. study, Marzullo (1996) claims that to be born in February or March—as opposed to in August or September—is also more often related to creativity and artistry. A similar pattern was found in Germany (Axt & Axt-Gadermann, 2004, p. 82 f.). Or—more trivial: People born in spring or summer of the northern hemisphere more often are "night owls," i.e., evening persons (Natale & Milia, 2011).

Almost 30 years ago, Wolfram Peiser and I had found that also a desirable *temperament* was more widespread among people born in spring or early summer in Germany: They tended to be more cheerful, to experience more joy of life (Peiser & Schoenbach, 1994). In the meantime, the amount of evidence has increased impressively confirming that spring- and summer-borns in the north of the northern hemisphere do not only enjoy at least a little more cheerfulness, but also more liveliness, less shyness (overviews in Schoenbach, 2018, but already also in Cortmaker et al., 1997) and better self-control (Lee, Lee & Lee, 2021). No surprise, then, that they more often regard themselves as "a lucky person" (Chotai & Wiseman, 2005) and seem to be less aggressive (Asano et al., 2016).

Season-of-birth research has suggested a number of reasons for differences between those born in spring or early summer and other people (see overviews in Zhang et al., 2019; Schoenbach, 2018; Antonsen et al., 2013)—for instance: The seasonally different amount of light influences c*hemical* reactions in our brains—e.g., the melatonin-dopamine ratio (Cortmaker et al., 1997) and the vitamin-D level (Day et al., 2015). Also, seasonal fluctuations in nutrition availability have been discussed as a cause (see, e.g., Chodick et al., 2009). The impact of one's month of birth on school-starting age—in the U.S. the difference between being born before September and later—has been investigated, too, as a cause of specific developments in personality (Dhuey et al., 2017). Finally, the warmer and sunnier environment during summers in the north certainly offers more stimuli and a richer social life for a newborn—and, in addition, also

about one year later, when toddlers usually begin to walk (e.g., Peiser & Schoenbach, 1994). At any rate, our first year after birth seems to be a particularly decisive year for physical and mental well-being later in life (e.g., Roseboom, 2018).

The basic premise of the analysis conducted for the MENA region (Schoenbach, 2018) and the following one is: If one's season of birth influences how cheerful and lively one is later in life, *media use* could help compensate lower levels of these personality traits. Such a function of the media is deducted from a broader reading of Dolf Zillmann's "mood management" theory (1988). Zillmann had applied it to situational "affective states" only (p. 328). He assumed that a bad mood makes us turn to exciting and absorbing media content (p. 331)—"cheerful programs, such as comedies," for instance (p. 335; see also Carpentier et al., 2008). Knobloch (2003) added "energetic-joyful" music for the same purpose.

So, the media genres entertaining enough to alleviate a bad mood obviously are defined by a *hedonic* approach to well-being (Whitaker, Velez & Knobloch-Westerwick, 2012). Hedonism equates well-being with pleasure, enjoyment and the avoidance of pain—as opposed to the *eudaimonic* perspective, originally described by Aristotle (about 340 BC/2000; see also, e.g., Kahneman et al., 1999, and Waterman, 1993). To achieve well-being, the eudaimonic approach suggests "seeking for meaningfulness," for the "gratification of greater insights," more than seeking for pleasure (Oliver & Raney, 2011, p. 987). An eudaimonic orientation therefore aims at "the cultivation of personal strengths and contribution to the greater good…, the realization of one's true potential" (McMahan & Estes, 2011, p. 93 f.).

In the MENA study, it was suggested that hedonic media offerings should not only be a choice for people who feel sad temporarily but also for those who feel less lucky and are less cheerful than others as their *permanent* emotional traits (Schoenbach, 2018)—thereby following Swedish researchers Karl-Erik Rosengren and Sven Windahl. They had proposed—as early as in 1972—that media consumption often serves as a "functional alternative" to experiences generally missing in everyday life.

The 2018 MENA study indeed revealed slightly different preferences for hedonic media genres, depending on one's season of birth (Schoenbach, 2018). That analysis was based on large and representative surveys in six countries of the MENA region—from Tunisia to Saudi Arabia. But, of course, that region is a setting quite different from where almost all studies on the impact of season of birth had been conducted before. In MENA countries, it is *winter* that offers a mostly still very sunny, but more pleasant, season. So, newborn babies can, for instance, be outside their homes

more frequently than in the often unbearable summer heat—and thus profit from both more sunlight and social contacts. Typically, doctors in the Gulf countries prescribe vitamin D in the summer, taking into account that people often do not get enough sun because they stay inside. This is why the 2018 analysis assumed that being born in the MENA spring or early summer should be related to that lower level of cheerfulness and liveliness found among people born later in the year of more northern countries.

The MENA study used the number of summer months (April to September) in one's first half year after birth as an indicator of the extent to which a baby had to cope with often extremely hot weather. Experiencing more of these months showed the expected relationships with one's preference for hedonic audio-visual media genres ("Comedy," "Drama," "Films on DVD") and with a slight but significant rejection of "Religious/spiritual" content, but interestingly also of "Daytime talk shows."

The present study, as a secondary analysis, replicates and refines the MENA one by exploring the impact of one's birth climate on preferences not only on specific audio-visual media genres—as in the MENA analysis. Now also a number of *music* styles are included. And like almost all studies on the effects of season of birth so far, this one looks again at the north of the northern hemisphere. It uses data from *Germany*—a country with relatively moderate summers and often "real" winters, i.e., with freezing temperatures and snow on the ground. So, the first, and general, hypothesis of this study reads:

H1. The more winter months in the first half year of their life individuals have experienced, the more they prefer hedonic media genres.

Also, as in the MENA analysis, age and gender will be looked at again as possible moderators of the impact of one's birth month. As to *age*, Oliver and Raney (2011, p. 999) suggest that *older* people may generally become more eudaimonic and thus not need hedonic media content that much anymore to compensate for a lack of cheerfulness. Quite consequently, eudaimonic genres may also be suitable for this purpose. But even *any* effect of the climate of one's birth on media-content preferences—whatever they are—could *fade* with becoming older, just because one's first half year after birth is longer ago: one of the results of the MENA study (Schoenbach, 2018, see also Cordova-Palomera et al., 2015; Harada et al., 2011; Peiser & Schoenbach, 1994).

In his review of the impact of winter months after birth on *depression*, Schnittker (2018) goes even further. He suggests that among today's younger cohorts this relationship may actually be weaker from the start—because conditions of life have significantly improved during the last 50 years,

making differences between lives of newborn babies in winter and in summer less important. Schnittker's example of those better conditions is food preservation, including refrigeration and distribution. But one could also think of more widespread central heating, better hygiene and, above all, the progress in medical (but also psychiatric) diagnosis and therapy.

All three assumptions seem plausible—i.e., older winter-borns do not need hedonic media content anymore, or any notable impact of one's birth date may only last as long as one is young, or this effect may be weak even for newborns already. A fourth possibility, of course, could still be that the impact of season of birth on hedonic media-content preferences at least somewhat stays as long as we live. This is why we do not test a hypothesis for the role of age, but will try to answer the following research question:

RQ1. How does age influence the relationships between the number of winter months right after birth and media-genre preferences?

Our second research question concerns *gender* as a moderator variable. Previous studies have shown that the impact of season of birth sometimes differs between women and men—albeit inconclusively (e.g., Lee, Lee & Lee, 2021; Blanch & Solé, 2021; Chotai et al, 2009; Kamata et al., 2009; Weber et al., 1998). More often, however, the role of gender has not been investigated at all. But women or men may be differently sensitive to darker months after birth and thus also show a different need to alleviate a lack of cheerfulness or liveliness by more entertaining media content. In the 2018 MENA study, gender did not matter (Schoenbach, 2018). Just to be safe, however, the following analysis includes gender again. But we do not dare formulate a hypothesis at this stage of our exploration, but instead ask:

RQ2. How does gender influence the relationships between the number of winter months right after birth and media-genre preferences?

A second hypothesis adds *education* as a third possible moderator to our analysis. Education has been shown to be an important determinant of one's media-genre preferences (see, e.g., the overview in Wonneberger, Schoenbach & Meurs, 2009). But so far, it has not been taken into account systematically in season-of-birth research of all kinds. Plausible, however, that somebody born with fewer summer months, but with a higher education, commands a wider range of possibilities to compensate for a lack of cheerfulness and of feeling lucky—and consequently does not have to rely on hedonic media use that much (see already Rosengren & Windahl, 1972). This could not only be due to a wider intellectual range by more education but also to factors that often correlate with it—one's social class, for instance, and one's family socialization (see, e.g., Bourdieu, 1984). If so,

the higher educated may actually need more sophisticated media content to be pleased (see, e.g., Knobloch-Westerwick, 2006). So, the according hypothesis reads:

H2. The lower one's education and the more winter months in the first half year of their life individuals have experienced, the more they prefer hedonic media genres.

Method

Our secondary analysis uses a large and representative survey of the German adult population: the so-called "German General Social Survey," in short "ALLBUS." The ALLBUS is a trend study, supervised by *GESIS—Leibniz Institute for the Social Sciences* and repeated every other year to observe attitudes, behaviors and social change in Germany. Its focus shifts, but it always carries an extensive demography, including one's month and country of birth. In 2014, and as an exception, the questionnaire contained also two item batteries about media-genre preferences. The ALLBUS sample is supposed to represent all adults (18 years and older) living in Germany and sufficiently capable to be interviewed in German.

The survey used face-to-face interviews via *Computer-Assisted Personal Interviewing (CAPI)* and was in the field between March 24 and September 13, 2014. In total, 3,471 persons participated, with a reasonable response rate of 35 percent. The data were weighted to represent the population as closely as possible. Weighting criteria were the number of East and West Germans as well as the size and composition of the household the respondent belonged to (see a detailed description of the questionnaire, the sampling and weighting procedures in Baumann & Schulz, 2015).

For the purpose of this analysis, those 2,991 respondents are used who did not only live in Germany in 2014 but were also *born* there. The reason is simple: To investigate the potential impact of the season of birth, we have to make sure that the climate conditions for all of respondents, when they were newborns, were as comparable as possible. Unfortunately, the dataset does not contain the respondents' exact *birthplaces*—for more precision of the weather conditions right after birth. But although Germans often perceive Hamburg in the north and Munich in the south of the country (a little more than 600 kilometers apart) as having almost opposite climates, this difference has actually not been that dramatic, at least as a long-term average. Between 1981 and 2010 and in July, the height of summer, Hamburg reached 7.0 sunshine hours per day, Munich 7.7. In January, Munich had an average of 2.6 hours of sunshine a day, Hamburg

followed with 1.6 hours. (see, e.g., https://www.dwd.de/DE/leistungen/klimadatendeutschland/mittelwerte/sonne_8110_fest_html.html?view=nasPublication). And the average meteorological summer temperature in Munich, again from 1981 to 2010, was 18.3 degrees Celsius, in Hamburg 17.1. During meteorological winter, it was an average 1.9 degrees in Hamburg and 1.0 in Munich (https://www.wetterkontor.de/de/wetter/deutschland/monatswerte-station.asp).

Even if these rather small climate differences could be regarded as serious, we should keep in mind that a little fewer or more sun hours and a little higher or lower temperature in one's first half year represent only one potential cause for more joy of life and vividness. As discussed above, we assume that one's *experience* of summer or winter is at least as important: the baby's social environment, e.g., how "summery" or "wintery" parents and other people behave. It could be possible, for instance, that the short and often not very warm summers in northern Sweden are experienced as exciting and pleasant as the much longer and mostly warmer ones in southern Germany.

Measurement

Our independent variable is the number of winter months in the first half year of one's life. It was based on the responses to:

"Please tell me in which month and year you were born."

The English wording of this question and of the other ones used in this analysis are retrieved from the extensive description of the 2014 ALLBUS survey by Baumann and Schulz (2015).

We defined winter months in Germany as October to March—so, their number could range from zero (born in April) to six (born in October). For the 2,940 respondents in the survey who were born in Germany and whose month of birth we know, the mean of this number is 3.0, with a standard deviation of 1.8.

For our dependent variables, the attractiveness of specific media genres, the survey used here contained two batteries of items for a secondary analysis: (a) interest in specific genres on television and (b) liking specific kinds of music.

(a) Interest in specific *television genres* was measured by the question:
"Now, I will name you different television programs. Please tell me by means of this list how strongly you are interested in programs such as this one."
The responses listed were: "Very strongly," "Strongly," "Medium," "A little" and "Not at all." For our analysis, the five answers were coded from 5 to 1, with "Very strongly" interested as 5 and "Not at all" interested as 1.
These were the types of television programs the respondents had to react to—with an N of 2,876 (in parentheses their average interest score between 1 and 5, and its standard deviation, separated by a comma): "Entertainment shows, quiz programs" (2.5, 1.1), "Sports programs" (3.0, 1.3), "News" (4.2, .9), "Political magazine programs" (3.0, 1.1), "Art and culture programs" (2.7, 1.1), "Detective movies, crime series" (3.2, 1.2) and "Family and entertainment series" (2.6, 1.1).

(b) To find out about their *taste of music,* the respondents were asked:
"Now, I will name you different kinds of music. Please tell me by means of this list how much you like listening to this music."
On the list the possible responses were: "I like listening to... very much," "I like listening to…," "I neither like nor dislike listening to...," I dislike listening to…" and "I dislike listening to… very much."
For our analysis the five answers were coded from 5 to 1, with "I like listening to… very much" as 5 and "I dislike listening to… very much" as 1.
These were the music styles the respondents had to react to—with an N between 2,934 and 2,949 (in parentheses their average liking score between 1 and 5, and its standard deviation, separated by a comma): "German folk music" (2.6, 1.3), "Folk music of other cultures" (2.6, 1.1), "German 'Schlager' music"—i.e., a Barry-Manilow type of popular German music (3.1, 1.2), "Pop music and today's charts" (3.6, 1.2), "Rock music" (3.4, 1.3), "Heavy Metal" (2.1, 1.3), "Electronic music—such as House, Techno, Electro" (2.3, 1.3), "Hip Hop, Soul, Reggae" (2.7, 1.3), "Classical music" (3.2, 1.2), "Opera" (2.5, 1.2), "Musical" (3.2, 1.2) and "Jazz" (2.8, 1.2).

Of course, one could assume that the items of the two batteries available for our analysis are connected, representing *styles* of liking music and of being interested in types of television programs. But a factor analysis (principal component) of all these genres together only reveals two—fairly weak—factors, with an explained variance of as low as 16 percent each. And only *music styles* considerably load on them—i.e., there is neither a

really close relationship *between* TV genres alone nor between TV and kinds of music.

One music factor is represented by "Classical music," "Opera", "Jazz" and "Folk music of other cultures"—with loadings (after rotation) of at least .48. Cronbach's alpha for these four items is a satisfactory .75. This is why we create an additive index of them and call it "High-culture music." The index ranges from 4 to 20, and its mean is 14.3 with a standard deviation of 4.3.

The second music factor is represented by "German folk music" and "German 'Schlager' music," with loadings (after rotation) of .80 and .77, respectively. Their additive index is called "'Schlagers' & German folk." Its range is 2 to 10 and its mean is 5.7 with a standard deviation of 2.2.

Finally, two more kinds of music are at least fairly strongly correlated (Pearson's r = .53**): "Hip Hop, Soul, Reggae" and "Electronic music—such as House, Techno, Electro." We name their additive index "Hip Hop & Electronic." It ranges from 2 to 10, and its mean is 5.0 with a standard deviation of 2.3.

In a preliminary attempt to categorize the media genres of the survey into hedonistic and non-hedonistic ones, we assume that the following types of television programming are mostly pleasant and "fun"—and thus, at least in principle, providing enough hedonic benefits to distract from one's lack of an outgoing temperament and also to allow identification with the protagonists of these genres as exemplars of cheerfulness (see above, Zillmann, 1988): "Entertainment shows, quiz programs," "Sports programs," "Family and entertainment series" and "Detective movies, crime series." As not primarily hedonic genres we consider "News," "Political magazine programs" and "Art and culture programs" (see a similar classification of media genres by Carpentier et. al., 2008).

As to music, and in terms of hedonism, we assume—again preliminarily—that most kinds of *popular* music are experienced as generally more pleasurable and as more fun than, e.g., classical music, opera, jazz, and folk music of other cultures (the components of our index "high-culture music"). If we accept this, at least *more* compensatory types of music for those with more darker months after birth would be: "'Schlagers' & German folk," "Pop music and today's charts," "Rock music" and "Musical." In contrast, "High-culture music," but also "Hip Hop & Electronic" and "Heavy Metal" might be experienced as more challenging and strenuous by most Germans.

This categorization is not to imply that the genres we classified as less suited for a hedonic compensation of less cheerful- and liveliness

are also less popular—they are not, as the means of their scores above document: At least on average, "Classical music" is just as attractive as "German 'Schlager' music"—with their mean scores of liking them: 3.2 and 3.1, respectively (see above). We still do assume, though, that, e.g., "High-culture music" is not used that often to alleviate the consequences of fewer summer months after birth for one's temperament.

However, any unobjectionable classification of genres is difficult, of course. So far we have used a kind of "popular taste" approach to hedonic well-being—we expect that most people regard, e. g., "Entertainment shows, quiz programs" as more fun than "Art and culture programs." But we cannot ignore that there may be individuals that do not only *use* the latter more often than the former, but who also *enjoy* them hedonically: for instance the higher educated (see above)—something to be explored in our analysis.

For RQ1, the *age* of the respondent was calculated in years, based on the question about one's year of birth (see above). The average age of our sample members was 49.0 years, its standard deviation 17.5 years (N = 2,949).

Gender (RQ2) was determined by the interviewers of the survey. Forty-nine percent of 2,951 respondents were assigned "female" and 51 percent "male."

Finally, for our hypothesis H2, *education* as a proxy for one's intellectual, but also social, capital (see above) was gauged by the question:

"Which school-leaving certificate do you have?"

On a list, possible answers began with "A I'm still a high school student" and "B No school leaving certificate." The other items on the list mirror (in ascending order) the German educational system—this is why we have to quote the responses literally (in parentheses the rough equivalent in the U.S., again retrieved from Baumann & Schulz, 2015): "C Volks-/Hauptschulabschluss bzw. Polytechnische Oberschule mit Abschluss 8. oder 9. Klasse" (= approximately a certificate of secondary education), „D Mittlere Reife, Realschulabschluss bzw. Polytechnische Oberschule mit Abschluss 10. Klasse" (= approximately high school), „E Fachhochschulreife (Abschluss einer Fachoberschule etc.)" (= approximately high school, but additionally qualifying for a vocational university), „F Abitur bzw. Erweiterte Oberschule mit Abschluss 12. Klasse" (= approximately college) and "G A different leaving certificate."

We excluded the 39 cases of still being a high-school student and of "A different leaving certificate" and constructed a scale of one's formal education by assigning scores to the five levels B to F of schooling, ascending

from 1 to 5. The mean of this scale, then, was 3.3 with a standard deviation of 1.3 (N = 2,916).

Analyses

In a fairly rigid fashion, *multiple linear regressions* serve as the statistical tool to determine the relationship between the number of winter months soon after birth and a specific media-genre preference: In a first step, for every genre and our sample as a whole, age, education and gender are simultaneous control variables, but also all the other media-genre preferences measured in our survey. The next step of the analysis, then, explores how the three demographics may *moderate* this impact (RQ1, RQ2, H2). For this purpose, the respondents are segmented: To investigate the role of *age*, we divide the sample into three almost equal portions and repeat our analyses for each subsample. The three age categories consist of those 41 years and younger, 42 to 57 years and, finally, 58 years and older.

For *gender*, we analyze men and women separately. For *education* as a moderating variable, its five levels are collapsed into two categories and also looked at separately. The two categories represent a *lower* formal education, i.e., levels B, C and D (ending with „approximately high school"), and a *higher* one, i.e. levels E and F (starting with „approximately high school, but additionally qualifying for a vocational university").

In these subgroups of the survey, multiple regressions still control for all the other media-genre preferences but also for the two demographic variables *not* used for segmentation, respectively—i.e., for age and education when the sample is split into men and women; for age and gender when formal education is analyzed; and for gender and education when the three categories of age are investigated separately.

To answer our RQs and to test H2 about the roles of age, gender and education, we apply two statistical conditions to determine whether they moderate the relationships between season of birth and TV or music genres: (a) the beta weight for at least one of the categories of these demographics should be significant at least on the five-percent level, and (b) the difference between it and the beta of at least one of the other respective categories should be statistically significant as well (again p smaller or equal .05). To compare these betas we use Fisher's z, as suggested, e. g., by Hemmerich (2017).

Results

The number of winter months in the first half year after one's birth is significantly related to half of the 14 media genres and their indices that could be investigated in this secondary analysis—to four of them for *all* respondents and three for at least one of our demographic subgroups. As suggested by the general hypothesis H1, "Entertainment programs, quiz shows," "Sports programs" and "Family and entertainment series" on television are a little more preferred by respondents with more darker months soon after birth—in other words, media content that one might generally regard as hedonic. And one of the music styles that we assumed to be less useful for alleviating a lack of cheerfulness, "Heavy Metal," is actually *disliked* somewhat, but fairly universally, the more winter months there were after birth (Table 1).

Table 1: Relationships Between the Number of Winter Months Right After Birth and Preferences for Television and Music Genres

	All	Age (in years)			Gender		Formal education	
		18 - 41	42 - 57	58+	Female	Male	Lower	Higher
Television genres:								
Entertainment shows, quiz programs	**.04***	.06	.02	.02	.04	.03	**.05***	.02
Sports programs	**.05****	-.00	**.06***	**.08****	.04	**.05***	.03	**.06***
Family and entertainment series	**.04***	**.07***	.03	-.01	**.06***	.01	.04	.04
Detective movies, crime series	-.01	-.03	.02	-.01	.02	-.03	-.01	.01
News	.03	-.03	.03	**.09****	.02	.04	.04	.01
Political magazine programs	.01	-.02	-.03	**.07***	.01	.01	.01	-.01
Art and culture programs	.01	-.01	-.03	**.06***	.03	-.01	.03	-.02
Music genres:								
'Schlagers' & German folk	.02	.00	.04	.01	.04	.01	.02	.03

	All	Age (in years)			Gender		Formal education	
		18 - 41	42 - 57	58+	Female	Male	Lower	Higher
Pop music and today's charts	.02	.04	.04	.03	.00	.04	.02	.05
Rock music	.00	.01	-.00	.03	.01	-.01	-.02	.04
Musical	.02	-.02	.05	.03	.04	.01	.03	.00
Hip Hop & Electronic	.00	.04	-.02	.02	-.01	.01	.00	-.00
High-culture music	.02	-.01	.01	.04	.02	.02	.00	.05
Heavy Metal	**-.06****	**-.07***	-.06	-.03	**-.06***	**-.06***	**-.06***	-.04
Minimal N	2,904	958	993	951	1,419	1,484	1,831	1,103

Note: Standardized betas from multiple regressions, controlled for all other genre preferences, age, gender and formal education, and also segmented by age, gender and formal education.

* betas, significant at the 5-percent level

** betas, significant at the 1-percent level.

These relationships are also confirmed in the smaller samples of one or the other of our demographic subgroups: "Entertainment shows, quiz programs" among the lower educated, "Sports programs" in the oldest group, "Family and entertainment series" in the youngest one, and finally the dislike of "Heavy Metal" also in this age category, but separately among women and men as well. The six other music styles of our analysis, however, simply do not matter significantly, neither as liked or disliked in connection with one's month of birth—although we had expected four of them as entertaining in a hedonic sense: "'Schlagers' & German folk," "Pop music and today's charts," "Rock music" and "Musical." In one of the age categories—the oldest one—we find even positive relationships of being winter-born with three media genres not considered to be particularly hedonic: "News" on television, "Political magazine programs" and "Art and cultural programs."

So, age indeed seems to be a relevant moderator (RQ1), but gender and education (RQ2 and H2) are not: Once the two statistical conditions described in our analyses section are applied, neither gender nor education significantly discriminate the relationships between TV- or music-genre preferences and the number of winter months soon after birth. In other

words, women and men do not really differ regarding the role played by their season of birth for media genre preferences, nor do higher or lower educated respondents. So, H2 is rejected.

In sum, however, our general hypothesis H1 is supported: The patterns in our data indicate that the fall/winter borns have a higher likelihood to prefer what we had called hedonic media genres.

Summary, Conclusions and Discussion

Does season of birth influence the attractiveness of media content? In this explorative analysis, a 2018 study in six MENA countries (Schoenbach, 2018) was both replicated and refined—now not in an often extremely hot region of the world but in Germany. This is why we expected that those with more *winter* months in their first half year should alleviate a lack of liveliness and cheerfulness by preferring hedonic media offerings. In sum, this seems to be the case—and even more universally than in the MENA study. An explanation could be that German summers, compared to its winters, are more impressive for newborns than the mild winters are in North Africa and the Middle East. In other words, Germans may simply "make more" of their summers than the MENA population does of their "summery" winters.

There is one subgroup in our analysis, however, that presents us with an interesting exception to this general result in Germany: the oldest one. Surprisingly, compared to at least the youngest respondents, those 58+ years old and with longer winters after birth are somewhat more interested in "News," "Political magazine programs" and "Arts and culture programs" on TV—even after the preferences for all the other genres as well as education and gender are controlled for. We had assumed that these types of TV programming should actually be less compensatory for a deficit in cheerful- and liveliness than "Family and entertainment series," for instance.

The MENA study (Schoenbach, 2018) had found similar evidence for older individuals—even more strikingly: In that region, older people preferred entertaining media content of *all* kinds less often, the more—in that case—hot *summer* months they had to endure soon after birth. The results of our analyses in Germany do not go that far—the oldest group of our sample is not systematically less interested in or dislikes hedonic genres more than other people. But, all in all, in Germany as well, and as suggested by Oliver and Raney (2011, p. 999—see above), older people

may indeed become more *eudaimonic,* also in their preferences of which media content they find compensatory.

As in the MENA study (Schoenbach, 2018), *gender* did not show as an important moderating variable in our analysis—i.e., women with more winter months soon after birth do not prefer more and/or different media content for mood management than males, at least not among the 14 genres we could investigate here. Also, one's *formal education* was not relevant as a moderator either. This makes our null results for liking or disliking specific *music* styles still puzzling. Sure, in the MENA study, both "Listen to music" as its only—and very general—variable for the *use* of music had not emerged as significant either. Nor had "Music videos" as the only measure of one's *preference* for musical media content (Schoenbach, 2018). But although our German data discerned specific kinds of music, only one of them, "Heavy Metal," shows up significantly in our analyses at all.

It is still surprising, though, that higher educated people with more winter months after birth do not like "High-culture music" significantly more than the low educated. And should *younger* respondents with longer winters as newborns not differ more strongly from the older ones in their preference for "Pop music and today's charts" and "Hip Hop & Electronic"?

What could be the reasons for this generally feeble role of music in our study? On the one hand, music as such may not be regarded as *absorbing* enough when it comes to the management of long-term emotional *traits,* as opposed to temporary bad moods (see above—Knobloch, 2003). Stronger stimuli than music may be needed, in this case audio-visual ones. This is probably why several television genres showed results as expected by our general hypothesis whereas music styles simply were treated indifferently.

On the other hand, some genres that our analyses did not reveal as significant as well may be too *strenuous* to be entertaining, too hermetic, not pleasant enough, again even for younger or higher educated people. This definitely seems to apply to "Heavy Metal," rejected by most of our respondents with more winter months soon after birth. And when it comes to "High-culture music" and "Hip Hop & Electronic," all of our respondents with a darker first half year tendentially shy back from liking them.

A cautious conclusion: What many people with more winter months soon after birth instead seem to be interested in is genres that are not only stimulating audio-visually, but also "mainstream," "middle-of-the-road," i.e., accessible—without being too bland, though: The effect of season of birth in one of our segmentations underscores such a compromise. To older winter-borns, "Sports programs" were more attractive than for

the youngest respondents, whereas "Family and entertainment series" were less popular among them—not exciting enough anymore after all these years?

To be sure, as in the MENA study (Schoenbach, 2018) replicated here, all relationships we have found are weak in statistical terms. But actually, one should not expect *strong* effects of the climate following one's birth date (see Schoenbach, 2018, and Peiser & Schoenbach, as early as in 1994). First of all, even for the youngest of our respondents, 18 years old, it is long ago. Second, season of birth, of course, is just *one* of the influence factors for our temperament and may be buried under a lot of "noise": for instance, and quite naturally, one's upbringing and education, material life conditions, but also sometimes dramatic turning points in life.

But our analyses could actually also *underestimate* the impact of season of birth—because the study certainly suffers from the typical constraints of a secondary analysis. First of all, we could investigate *indirect* effects of one's climate after birth only. But based on a number of previous studies (see above), season of birth quite plausibly influences one's temperament. Plausible as well is that temperament, in a next step, could have consequences for one's media-content preferences—serving as mood management, even many years later. Second, the impact of one's birth date might show greater effects once its climate conditions could be defined more precisely—e.g., by not only counting the summer or winter months right after birth, but also by using the exact weather of these months at one's exact birthplace.

Of course, one could also think of refining the *dependent* variables of our analysis: For instance, more media genres—and more fine-grained ones—would be useful: Maybe there were no significant effects of season of birth on liking a very general genre such as "Rock music." Respondents may simply be split about what it means: For instance, some of them may call the music of *Deep Purple* not "rock," but suffer from it as already too much "Heavy Metal"—and may therefore not like it. Or "jazz" could mean either its lively and energetic form or a more laid-back and sublime one. Also, other *moderating* conditions could be explored that might strengthen or weaken the relationships between season of birth and interest in specific media offerings: one's media socialization at home, for instance.

Finally, what do our results mean for uses-and-gratifications research in communication studies—i.e., for explaining the purposes people use media content for? First of all, the extension of mood-management theory that was suggested in the MENA study (Schoenbach, 2018) seems to work again: Entertaining media content seems to be preferred not only to compensate for situational and temporary bad moods, but also for more

structural deficits in cheerfulness and liveliness. For many people, this compensation may need middle-of-the-road media offerings—absorbing, but not too challenging. Lastly, it should be mentioned once again that the relationships investigated here were not intended to finally incorporate notions of astrology—the planets of one's sign of the zodiac—in media-audience research, but to suggest that the impact of one's first experiences in life can shape media preferences.

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