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Surveying Immigrants

The Role of Language Attrition and Language Change in the Application of Questionnaires

Patrick Brzoska

Abstract

Quantitative questionnaires are increasingly applied across different languages and cultures. They play an important role in research on immigrant communities as well as in surveys of the general population of which immigrants are a significant part. Because immigrants have often limited proficiency of the language of the host country, usually questionnaires in their first language ("mother tongue") are needed. For this purpose, it is common to use questionnaires developed or adapted for the population of the respective countries which immigrants originate from. The applicability of these questionnaires, however, may be limited because of differences between both populations in terms of language usage, amongst others resulting from language attrition. This, for example, can be illustrated by means of the Revised Illness Perception Questionnaire (IPQ-R) applied to Turks in Turkey and Turkish immigrants residing in Germany. Questionnaires, therefore, must be thoroughly tested and often re-adapted to the language style and level of language proficiency of immigrants to avoid different forms of bias. An analytical framework of questionnaire equivalence can guide the process of testing and re-adaptation.

1   Introduction

Quantitative questionnaires are often applied across different countries and languages. Because of growing diversity and international migration, practitioners and researchers in many fields are also faced with the need to collect self-reported information from immigrant communities within a single country. Consequently, the need for multi-cultural and multi-language adaptations of research instruments is increasing, further stimulated by growing interest in cross-cultural research in general (Porter & Gamoran, 2002; Harkness, 1998; Hanna, Hunt & Bhopal, 2008).

Survey research among immigrants is associated with different challenges encompassing the entire research process. Many of these challenges go beyond the problems encountered in cross-national and cross-cultural survey research in general. Given their special characteristics, immigrants are often difficult to define and hard to reach. This makes the application of sophisticated sampling techniques and field work necessary in order to define adequate sampling frames and to collect high-quality data (see also Jacobsen

or Jesske in the present volume). One particular challenge concerns the application of quantitative questionnaires. As many immigrants have limited proficiency of the host country's main language(s), it is usually necessary to also provide questionnaires in their first language, that is, their 'mother tongue'. In the social, behavioral, and health sciences, frequently used questionnaires are available in different language versions. They have often been validated in the countries where immigrants originate from. In survey research on immigrants, it is common to make use of these questionnaires—often without further re-adaptation. For example, questionnaires developed for the population of Turkey are usually applied for the study of Turkish immigrants residing in Germany or the Netherlands. However, the first language spoken by immigrants may differ from the language spoken in their countries of origin in terms of their lexical, syntactical, and semantic characteristics as a result of a differential language development over time, amongst others resulting from language attrition.

The present paper illustrates how these differences may affect the functioning of questionnaires on several levels and how they may be responsible for a low performance of questionnaires frequently reported in migration research. For this purpose, the paper uses the study of illness perceptions in Turks residing in Turkey and Turkish migrants residing in Germany as an example. In the following, first a brief introduction into the language usage among immigrants and the role of language attrition is given, thereby also illustrating why users of Turkish as a first language living outside Turkey may be particularly prone to this phenomenon. Second, the construct of illness perceptions is described, which in this paper serves as an exemplary outcome to examine the transferability of psychometric questionnaires between immigrants and their population of origin. Third, results from studies on the functional equivalence of the Revised Illness Perception Questionnaire (IPQ-R) applied to Turks in Turkey and Turkish immigrants in Germany are presented, showing that the functioning of the questionnaire among Turkish immigrants may be limited despite a good performance among Turks in Turkey. Finally, recommendations are given on how differences in language usage between immigrants and their population of origin can be considered by means of thorough testing and re-adaptation when research instruments are to be used across both populations.

2   Language Attrition and Differential Language Development

In survey research, it is well acknowledged that the psychometric properties of questionnaires may differ when they are applied across users of the same language residing in different countries. Commonly used survey instruments such as the Short Form Health Survey 36 (SF-36) assessing health-related quality of life are therefore available in different varieties of the same language spoken in different regions (e.g., Spanish for Spain, Argentina, and the US or English for the US, Taiwan, and Australia). The differences between versions are reflected, for instance, in a different vocabulary or in different idiomatic language use. These differences are necessary as the meaning of words or the familiarity with certain expressions may differ between geographical regions. In addition, some words and expres-

sions possibly do not exist in some countries, regions or cultures (Spielberg, Moscoso, & Brunner, 2005). This is of particular relevance in cross-cultural research on health, since expressions describing health and illness are known to vary across (sub)cultures (Anastasi, 1972).

These differences in language usage between speakers of the same language are also relevant for immigrant research. With increasing time that immigrants spend in the host country, their usage of the first language may become different from that of the source population with regard to grammar, vocabulary, and semantics. While some differences only comprise lexical extension (e.g., to adapt to the new circumstances of living), others may reflect a deterioration of language skills resulting from language attrition (Pavlenko, 2004; Backus, 2006; Seliger & Vago, 1991).

Language attrition refers to the "loss of any language or any portion of a language by an individual or a speech community [...] [including] the declining use of mother tongue skills by those in bilingual situations or among ethnic minorities in (some) language contact situations where one language, for political or social reasons comes to replace another" (Lambert & Freed, 1982, p. 1). It particularly affects complex syntactical and lexical language features that are acquired late in the language development process, and that are complex and less frequently used. Language attrition may especially occur in contact situations involving two or more language families (ibid.).

Turkish is an Altaic language and is thus fundamentally different from the languages of the main host countries that Turkish immigrants reside in, such as German, Dutch, French, and English. Being languages of the Indo-European language family, their syntactical and lexical characteristics differ substantially from Turkish. This could increase the susceptibility of Turkish speakers to language attrition. As an agglutinative language, Turkish joins morphemes to form words/expressions and to fulfill grammatical and syntactical functions – a linguistic process referred to as 'agglutination'. An example for this feature is an expression such as *arabanızdaydım* ('I was in your car'), combining a noun (*araba*) with morphemes indicating possession (-*nız*-), location (-*da[y]*-), time (-*d*-), and personal pronoun (-*ım*-). In contrast to Turkish, many Indo-European languages such as English and German are fusional. In fusional (or inflectional) languages, "the separation between morphemes is not readily apparent. Characteristically, in such languages inflectional morphemes each express two or more categories (for example, number/case in the noun, or tense/person/number in the verb)" (Harris & Zu, 2006, p. 513).

Due to geographical distance and isolation from the development of the Turkish language in Turkey, Turkish immigrants are considered by some authors to lose the "feeling for their language" (Özata, 1993, p. 102), which comprises a loss of their first language's lexical, semantic, and syntactical properties. As a result, they have developed a new variation of the Turkish language, which is referred to as "contact Turkish", a "mixed-language" or "Immigrant Turkish" (Özata, 1993; Schroeder, 2003; Backus, 2006, 1992; Tekinay, 1983b, 1983a, 1987). Some even consider it to be a new dialect of Standard Turkish primarily based on oral communication (Rehbein, 2001).

These assumptions are also supported by empirical studies which provide evidence that the Turkish language used by first-generation Turkish immigrants is influenced by the lexical, syntactical, and grammatical structure of the respective host country's language in

various aspects (Boeschoten & Verhoeven, 1985; Tekinay, 1983b, 1987). This may become evident in different forms of code-switching. They may occur within syntactical entities where expressions of the contact language replace equivalents of the Turkish language such as in the examples *şıpasiren yapmak* (from German 'spazieren gehen', i.e. 'go for a walk'; instead of Turkish *gezmeye gitmek*), *überşutun yapmak* (from German 'Überstunden machen', i.e. 'to work overtime'; instead of Turkish *fazla mesai yapmak*) and *kaufa gitmek* (from German 'einkaufen gehen', i.e., 'go shopping'; instead of Turkish *alışverişe çıkmak*) (Tekinay, 1983b, 1987). Similar observations were made by Boeschoten and Verhoeven (1987). They identified patterns of code-switching in terms of insertion among first-generation adult Turkish immigrants in the Netherlands who tended to incorporate Dutch words into their Turkish language communication. Code-switching patterns can also include mixing on the syntactical level of the language comprising declension suffixes such as in the example *farşuleye* (from German 'in die Fahrschule', i.e., '[to go] to driving school'; instead of Turkish *sürücü kursuna*), prepositions such as in *ubanla* (from German 'mit der U-Bahn', i.e., 'by subway'; instead of Turkish *metroyla*), and suffixes such as in *kinderler* (from German 'Kinder', i.e., 'children'; instead of Turkish *çocuklar*) (Boeschoten & Verhoeven, 1985; Tekinay, 1983b, 1987).

In the first place, code-switching concerns the active use of language in oral communication and in most instances is less relevant for the understanding of psychometric questionnaires. Studies from the Netherlands and Australia, however, also provide empirical evidence for attrition in the syntactical structure of the language used by Turkish immigrants which also affects the passive use of language and has thus also implications for the understanding of questionnaires. By means of a comparison of the language usage of Turkish immigrants and Turks residing in Turkey, this syntactical attrition became evident in a lower complexity of sentences, a lower linguistic test performance, a lower self-reported fluency in the Turkish language, and in a higher self-reported difficulty to understand jokes and ironic comments (Huls & van de Mond, 1992; Yagmur, de Bot, & Korzilius, 1999; Gürel, 2004). The studies also showed that both the lexical and syntactical attrition of the Turkish language spoken by Turkish immigrants was positively correlated with the length of stay.

As most languages, also Turkish dynamically develops over time and is therefore continuously changing (Can & Patton, 2010; Dogancay-Aktuna, 1995; Brendemoen, 1998). In the case of Turkish, this development is also characterized by a substantial increase in neologisms which have entered the Turkish language in the 20th and 21st century. In part, this is attributable to an ongoing and government-supported language reform, which aims to modernize the Turkish language. As a consequence, words of Arabic or Persian origin have been replaced by Turkish equivalents (Tekinay, 1983a; Lewis, 1999). Amongst others, this included back-formation from the old Turkish language (e.g., *sınamak* is nowadays more common than *imtihan etmek* ['to try', 'to examine']), loan words such as *ruhbilim* instead of *psikoloji* ('psychology'), and new formations such as *seçenek* instead of *alternatif* ('alternative') (Dogancay-Aktuna, 1995; Brendemoen, 1998). Since many Turkish immigrants, who today constitute large communities throughout Europe, had emigrated in the 1950s through 1970s and had almost no access to Turkish-language media until the mid-1990s, they were less exposed to the development of the Turkish language that was taking

place in Turkey during that time (Sirim, 2009). This may result in the use of many Ottoman Turkish language terms, such as *münazara yapmak* instead of *tartışmak* ('to discuss'), that may be less known to new generations as empirical evidence suggests (Özata, 1993).

3 The Construct of Illness Perceptions and its Measurement

Illness perceptions refer to beliefs patients develop when they fall ill. Illness perceptions are usually conceptualized by means of the Self-Regulatory Model of Illness (SRM) (Leventhal, Brisette, & Leventhal, 2003), which considers health and illness behavior to be influenced by previous experiences and subjective theories of illness. Patients' perceptions develop around the answers they find to certain questions emerging in the case of illness. They can be clustered into different dimensions: How are my symptoms related to my illness (Identity)? How long will the illness last (Timeline)? What has caused my condition (Cause)? How will it affect me (Consequences)? Can it be controlled by personal actions and/or treatment (Control)? In addition to these cognitive beliefs, patients develop emotional representations such as fear of possible disease consequences.

Illness perceptions are associated with physical functioning, psychological distress, psychological well-being, role functioning, social functioning, vitality, and disease outcomes (Jones, Smith, & Llewellyn, 2016; Hagger & Orbell, 2003). Congruent illness beliefs between patients and doctors are important for optimal disease management and coping with illness. Likewise, knowledge about patients' illness perceptions is essential to establish an effective patient-provider relationship. This makes the valid assessment of illness perceptions in research and practice highly relevant.

Illness perceptions are commonly assessed by means of the Revised Illness Perception Questionnaire (IPQ-R) (Moss-Morris et al., 2002). The IPQ-R consists of three parts. The first assesses illness identity through 14 binary items. The second part measures the dimensions of timeline (consisting of the sub-dimensions acute/chronic timeline and cyclical timeline), consequences, control (distinguishing between beliefs related to the controllability by means of treatment and by means of personal actions), coherence, and emotional representations by means of 38 items. The items are rated on a five-point response scale from "1=strongly agree" to "5=strongly disagree" (see Appendix, Tab. 1 for an overview of exemplary items). The third part, using the same response format, assesses beliefs patients hold about potential causes of their illness.

The validity of the IPQ-R has been confirmed for different diseases such as diabetes (Searle, Norman, Thompson, & Vedhara, 2007; Abubakari et al., 2013), cardiac diseases (Cooper, Lloyd, Weinman, & Jackson,1999; Petrie, Cameron, Ellis, Buick, & Weinman, 2002), and cancer (Hagger & Orbell, 2005). The questionnaire was also translated into different languages. While in many of these non-English versions only exploratory examinations have been conducted, confirmatory factor analyses (CFA) exist for only a few languages, for instance, Chinese (Chen, Tsai, & Lee, 2008) and Swedish (Brink, Alsén, & Cliffordson, 2011). Although many of these studies identified minor sources of poor model fit, the general measurement model of the questionnaire has been confirmed in most cases.

The Turkish version of the questionnaire was translated by Brzoska et al. (2012). Its validity was examined by means of a survey of 302 patients with diabetes mellitus type 2 and/or cardiovascular disease in out-patient clinics in Turkey. Its factorial validity was examined by means of CFA. Similar to other language validations, the questionnaire exhibited minor sources of poor model fit, resulting in the deletion of four of the 38 items of the original measurement model. The remaining 34 items loading on seven dimensions (Fig. 1) showed a satisfactory model fit.

4 Functional Equivalence Testing in Turkish Migrants and Turks Residing in Turkey

Immigrants are often surveyed by means of questionnaires that have been translated and/ or adapted for the populations of the countries they originate from. The performance of these questionnaires has been reported to be limited among immigrants (see for example Brzoska & Razum, 2010; Mewes, Christ, & Rief, 2009). In order to examine reasons for this limited performance, Brzoska (2014) conducted a mixed-method study in Turks residing in Turkey and Turkish migrants residing in Germany based on a comprehensive analytical framework of equivalence covering conceptual, semantic, and measurement characteristics of the IPQ-R. To examine differences in the psychometric characteristics of the questionnaire between the two populations and to identify sources of poor model fit, the measurement invariance of the questionnaire was tested by means of multi-group confirmatory factor analysis (MGCFA) and multiple indicators, multiple causes (MIMIC) models using data from 601 patients of Turkish origin in Turkey and Germany.

Several areas of poor model fit in the Turkish IPQ-R were identified in the sample of Turkish immigrants. Amongst others, five of the 34 items of the Turkish IPQ-R had to be deleted because of low factor loadings resulting in a solution which comprised six of the original seven IPQ-R factors and which thus only fulfilled partial configural invariance. Only 19 of the remaining 29 items exhibited scalar invariance. This means that Turkish immigrants and Turks in Turkey provided different responses to ten items despite having the same position on the respective latent factor. The findings were not affected by sociodemographic/-economic factors or disease characteristics as MIMIC analyses revealed.

A limited equivalence of measurement instruments administered to Turks in Turkey and Turkish migrants in Germany were also observed by Mewes et al. (2009), who studied differential item functioning in both populations with respect to the Screening for Somatoform Disorders-2 (SOMS-2) inventory.

As for the IPQ-R, the observed measurement non-invariance between both population groups cannot be explained by a construct bias resulting from differences in the conceptualization of illness perceptions in both populations as a systematic literature review and qualitative studies show (Yilmaz-Aslan, Brzoska, Bluhm, Aslan, & Razum, 2014; Brzoska, 2014). Cognitive interviews conducted among 58 patients of Turkish origin who were asked to reflect on the perceived difficulty and usability of the IPQ-R show that several of the non-equivalent IPQ-R items were misunderstood by Turkish immigrants because

of complex item wording and unknown or ambiguous words and expressions used in the questionnaire (Brzoska & Razum, 2010). In order to study potential differences in the understanding of the questionnaire items and to examine the appropriateness of the Turkish language and style, Brzoska (2014) also conducted expert interviews with seven individuals experienced in the language usage of Turkish immigrants. In the majority of items, all respondents identified words and expressions they considered as difficult to understand for this population because of formal speech, complex wording or terms seldom used by this population group. This, for instance, comprised formal terms such as *muhtemelen* ('probably') and *gayet net* ('very clear'), for which also less formal equivalents would exist (*galiba* and *çok açık*, respectively). Complex wordings, for instance, were expressions such as *olumsuz etkileri* ('negative influence') and *farklılık gösteriyor* ('show differences'), which could also be replaced by easier to understand alternatives such as *zarar* ('consequences') and *değişiyor* ('change'), respectively. Items which are difficult to understand or which are prone to misunderstanding may contribute to an item bias resulting in measurement non-equivalence (Byrne et al., 2009; van de Vijver & Poortinga, 2005) and may indicate that both population groups differ in their usage of the Turkish language.

5   Conclusions

Immigrants who have a limited proficiency in the main language(s) of the host country are usually surveyed by means of questionnaires in their first language ('mother tongue'). Many standard questionnaires are available in several language versions, usually validated for the population of the countries where immigrants originate from. However, questionnaires developed for native populations may perform differently when administered to the respective immigrant communities. Differences in the performance can result from a differential development of language characteristics in both populations over time, including language attrition among the emigrated population. This differential variation of language usage among immigrants and their population of origin may introduce different forms of method and item bias, which reduce the structural validity of "native" questionnaires when administered to immigrants. It therefore must be considered through thorough testing and re-adaptation when research instruments are to be used across both populations. An analytical framework of questionnaire equivalence, such as that proposed by Brzoska (2014), can guide the process of testing and re-adaptation.

In cross-group comparative research, for instance, on differences in attitudes, values, and beliefs, good psychometric properties of a questionnaire in each of the separate groups to be compared do not ensure a valid cross-group comparison. Unless equivalence is established, it remains unclear whether differences observed between groups reflect true differences or are the result of a systematic measurement error. Potential sources of non-equivalence, therefore, must be taken into account in different research phases, for instance, by field testing and the use of latent variable modelling in order to ensure comparability of measurements. Not only researchers must be aware of the differences that may exist between source and immigrant populations and that need to be considered when question-

naires are to be transferred between both groups. Also funding bodies should acknowledge the need for a formal validation process prior to substantive research and provide appropriate resources accordingly.

The differences in language usage illustrated are also relevant for other fields of social research and practice. Comparable to questionnaires, also written and oral material which is used across populations, e.g., for purposes of education or information, must be evaluated in terms of its transferability. Similarly, in translations of documents which are meant to be distributed to immigrant communities, the special (linguistic) characteristics in this population must be considered. This can be facilitated by including individuals into the translation process who are familiar with the language usage of immigrants.

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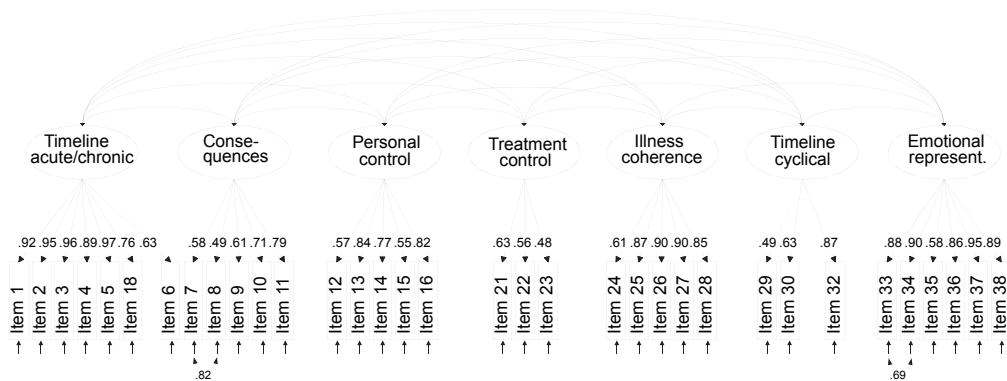
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Appendix

Table 1   Dimensions and sample items of the IPQ-R part II (Moss-Morris et al., 2002)

IPQ-R part II dimension	Number of items	Sample items
Acute/chronic timeline	6	"My illness will last a short time"
		"I expect to have this illness for the rest of my life"
Cyclical timeline	4	"My illness is very unpredictable"
		"The symptoms of my illness change from day to day"
Consequences	6	"My illness is a serious condition"
		"My illness causes difficulties for those who are close to me"
Personal control	6	"There is a lot I can do to control my illness"
		"What I do can determine whether my illness gets better or worse"
Treatment control	5	"Treatment will be effective in treating my illness"
		"There is nothing that can help my illness"
Illness coherence	5	"The symptoms of my illness are puzzling to me"
		"I have a clear picture or understanding of my illness"
Emotional representations	6	"My illness makes me feel afraid"
		"I get depressed when I think about my illness"

Note. The coefficients displayed on the arrows signify completely standardized factor loadings (straight arrows) or error covariances (curved arrows below the items). All coefficients are significant at p<0.05. Coefficients for factor covariances are not displayed.

Figure 1   Measurement model of the Turkish IPQ-R part II (based on data from Brzoska et al., 2012)