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SHORT REPORT

Public awareness and practical knowledge regarding Hepatitis A, B, and C: A two-country survey

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KEYWORDS

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Summary

Aim: To assess the level of public awareness and practical knowledge regarding Hepatitis A, B, and C in two low-endemic countries (Germany and The Netherlands).

Methods: Two large-scale surveys ($N = 1989$ and 668).

Results: Although public awareness was high, practical knowledge regarding differences in the mode of transmission, consequences, and prevention was very low in both countries, especially among those with a lower level of education.

Conclusion: Future public health initiatives are warranted to increase knowledge as a first step to empower people, especially those with a lower level of education.

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Introduction

Hepatitis A, B, and C virus (HAV, HBV, HCV) infections have similarities, but they differ in their mode of transmission, consequences, and prevention. HAV can be transmitted through oral–fecal contact, for example, but this is not the case for HBV and HCV.

Previous studies focusing on specific target groups, such as immigrants from high- or medium-endemic countries, demonstrated low levels of knowledge [1,2]. A population-based survey regarding HBV in Hong Kong (a high-endemic area) also revealed low levels of knowledge [3]. The current study focuses on public knowledge within low-endemic countries. Although the endemic status in these countries is classified as low, it is essential that people have the necessary knowledge, because it is a prerequisite for performing pertinent behaviors (e.g., vaccination, hygiene measures). Furthermore, people may need to decide whether others (e.g., their children) should be vaccinated. Therefore, the aim of the current study is to assess

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the level of public knowledge regarding HAV, HBV and HCV in two low-endemic countries (Germany and The Netherlands).

To this end, E.M. Rogers' distinction between 'awareness knowledge' and 'how-to knowledge' is employed in this study. Awareness knowledge refers to the knowledge that something exists, whereas how-to knowledge refers to the practical knowledge of how something is done (and is therefore simply referred to as practical knowledge in this study). This distinction has proven valuable for public knowledge regarding multifactorial diseases [4].

Moreover, this study considers the level of education. This consideration is based on the knowledge gap theory, which states that the increasing amount of information in a society is not evenly acquired by each of the members of the society. People with a higher educational level tend to have a better ability to acquire information and are more concerned about a possible lack of knowledge [5].

Methods

Two large-scale surveys were conducted during Spring 2011.

Participants

Survey I – Germany: Data were collected through the German online Wiso-Panel. This online resource includes demographically heterogeneous participants from all walks of life. A sample of 9154 people was invited by e-mail to participate in a survey. This sample was not necessarily representative of the German population because a wide range of recruitment methods, both probabilistic and nonprobabilistic (e.g., newsletters, word-of-mouth, search engines), were used. Of those invited, 2367 participants began the survey (25.9%), and 1989 completed it (84.0%). The average age was 40 years (SD=14), and 60.5% of the participants were women.

Survey II – The Netherlands: The data were collected through an online panel owned by a Dutch Internet research agency. From this panel, a stratified sample of 1044 people representative of the Dutch population was invited by e-mail to participate in this survey. Of those invited, 668 began and completed the survey (64.0%). The average age was 49 years (SD = 16), and 49.7% of the participants were women.

Measures

The same measures were used in both surveys. The measures were back translated, and two native

speakers confirmed the translation accuracy independently.

Awareness knowledge: Five 'yes/no' items assessed awareness of similarities and differences regarding HAV, HBV, and HCV.

Practical knowledge: Fifteen 'true/false' items assessed practical knowledge. Five items were related to each of the three types of virus infections. Three of these five items were related to transmission and consequences, and two were related to prevention. The scale was balanced: seven items were 'true' and eight items were 'false'. In Survey II, a 'don't know' option was added to prevent participants from randomly guessing the answer, thereby inflating the percentage of correct answers. The content of all items was based on information from the Dutch National Hepatitis Centre.

Analyses

Multivariate analyses were conducted to assess the association between the level of education and knowledge scores, using sum scores of the number of correct answers. Knowledge scores were divided into knowledge regarding HAV, HBV, HCV, transmission and consequences, and prevention.

Results and discussion

Table 1 shows that although public awareness was high, practical knowledge was very low in both countries (i.e., just above 50% correct). These data show that people are aware of the existence of similarities and differences regarding HAV, HBV, and HCV, but they know less about the transmission, consequences and prevention of these infections. Although it may appear that practical knowledge was higher in the first survey, this apparent difference is the result of the addition of a 'don't know' option to the second survey. The first item ('Hepatitis A can be spread through food'), for example, was correctly answered by 51.3% of the respondents in the first survey but only 30.4% in the second survey. In the second survey, however, 45.8% chose the 'don't know' option. Assuming that half of those choosing 'don't know' would have guessed the answer correctly, an outcome corresponding to chance level, the results appear comparable across both surveys. Correct answers about sexual intercourse as a mode of transmission for Hepatitis B were given by 63.0% of participants in the first survey and 77.6% in the second survey. The higher proportion of correct responses

Table 1 Public awareness and practical knowledge in both countries.

Knowledge	N	Awareness	Practical	HAV	HBC	HCV	Transmission and consequences	Prevention
Range		0–5 M (SD)	0–15 M (SD)	0–5 M (SD)	0–5 M (SD)	0–5 M (SD)	0–9 M (SD)	0–6 M (SD)
Survey I: German sample	1989	4.0 (1.3)	8.5 (2.4)	2.8 (1.1)	3.2 (1.1)	2.5 (1.2)	4.8 (1.6)	3.7 (1.3)
Level of education		$F=3.9$ $p=.002$ $\eta^2=.010$	$F=7.9$ $p<.001$ $\eta^2=.020$	$F=7.8$ $p<.001$ $\eta^2=.019$	$F=2.5$ $p=.03$ $\eta^2=.006$	$F=4.3$ $p=.001$ $\eta^2=.011$	$F=7.9$ $p<.001$ $\eta^2=.020$	$F=3.9$ $p=.002$ $\eta^2=.010$
No degree ^a	12 (0.6%)							
Nine years of school	206 (10.4%)	3.8 (1.4)	7.8 (2.3)	2.5 (1.1)	3.0 (1.1)	2.3 (1.2)	4.3 (1.6)	3.4 (1.3)
Vocational qualification	571 (28.7%)	4.1 (1.2)	8.3 (2.2)	2.8 (1.1)	3.1 (1.0)	2.4 (1.2)	4.6 (1.5)	3.7 (1.2)
Higher education entry qualification	456 (22.9%)	4.0 (1.3)	8.7 (2.3)	2.9 (1.0)	3.2 (1.1)	2.5 (1.2)	4.9 (1.5)	3.8 (1.2)
University degree	678 (34.1%)	4.0 (1.3)	8.6 (2.5)	2.9 (1.1)	3.2 (1.1)	2.5 (1.2)	4.9 (1.6)	3.7 (1.4)
Doctorate	66 (3.3%)	4.1 (1.2)	9.2 (3.0)	3.3 (1.1)	3.2 (1.3)	2.7 (1.4)	5.3 (1.9)	3.9 (1.4)
Survey II: Dutch sample	668	3.1 (1.5)	5.2 (3.2)	1.9 (1.3)	2.1 (1.4)	1.2 (1.3)	2.9 (2.0)	2.3 (1.5)
Level of education		$F=12.2$ $p<.001$ $\eta^2=.035$	$F=10.8$ $p<.001$ $\eta^2=.032$	$F=12.8$ $p<.001$ $\eta^2=.037$	$F=4.6$ $p=.01$ $\eta^2=.014$	$F=5.1$ $p=.006$ $\eta^2=.015$	$F=10.6$ $p<.001$ $\eta^2=.031$	$F=7.2$ $p=.001$ $\eta^2=.021$
Low (primary and lower secondary education)	237 (35.5%)	2.9 (1.5)	4.6 (2.9)	1.6 (1.2)	2.0 (1.4)	1.0 (1.2)	2.6 (1.8)	2.0 (1.4)
Intermediate (upper secondary education)	255 (38.2%)	2.9 (1.5)	5.3 (3.3)	1.9 (1.3)	2.1 (1.5)	1.2 (1.4)	2.9 (2.1)	2.4 (1.5)
High (tertiary education)	176 (26.3%)	3.5 (1.3)	6.1 (3.2)	2.2 (1.2)	2.4 (1.4)	1.5 (1.5)	3.5 (2.1)	2.6 (1.4)

^a Not reported because of low cell count.

regarding sexual intercourse as a mode of transmission in comparison with food can be explained by the relative importance of this mode of transmission in the local context of Germany and The Netherlands. Although there were methodological differences between the two surveys (i.e., recruitment, answering scales), the results were comparable for Germany and The Netherlands (e.g., these are low-endemic and culturally similar countries).

There were large and significant differences regarding the level of education in both surveys. This result is consistent with the knowledge gap theory: people with a higher level of education tend to have higher levels of awareness and practical knowledge (Table 1). This outcome is in agreement with the theory's assumption that the increase of information in society is not evenly acquired by each of its members.

Conclusions

Although people in low-endemic countries are aware of the similarities and differences between HAV, HBV, and HCV, there is a serious lack of practical knowledge. Future public health initiatives should (1) focus on knowledge as a first step to empower people to carry out pertinent behaviors and (2) specifically target those with a lower level of education.

Conflict of interest

The authors have no conflict of interest to declare.

Author contributions

RC designed the study and analyzed the data. AG contributed to the collection and interpretation

of the data. RC drafted the manuscript, and AG revised it. Both authors have approved the manuscript.

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