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A systematic review of epidemiological literature on the eye health of marginalized fishing populations

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SHORT REPORT

A systematic review of epidemiological literature on the eye health of marginalized fishing populations

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Abstract

A systematic review was conducted in December 2013 to examine the extent to which health research has been focused on the eye health issues of fishing communities. We searched multiple databases to identify relevant citations, using a combination of Medical Subject Headings (MeSH) and text words representing eye health, fishing populations and measures of disease frequency. The search yielded only 4 studies, described in 5 articles. Three studies (one each in Turkey, Egypt and Spain) provided data on self-reported eye problems in fishermen or fishery workers, with prevalence ranging from 38% to 81%. There was only one study in the literature that objectively assessed the burden and causes of vision impairment and blindness in fishing communities. None of the studies examined availability, accessibility, acceptability and quality of eye care services. We conclude that marginalized fishing communities are almost non-existent in eye health literature. Eye health needs of these and other marginalized populations must be identified and addressed in post-2015 health and development agenda.

Keywords: Systematic review, Eye health, Eye care, Access, Marginalised groups, Fishing communities.

Introduction

Fishing communities are among the most marginalised groups worldwide. These communities are frequently characterised by disproportionate levels of poverty, low levels of school-based education, and segregation - although the size of these problem may vary from place to place and from culture to culture.[1,2] In 1974, the United Nations' Food and Agriculture Organisation emphasised that "the people engaged in these activities and their families continue, with few exceptions, to live at the margin of subsistence and human dignity."[3] Four decades later, this situation has remained largely unchanged, despite the high demand for sea products and despite unparalleled progress in poverty reduction in most countries in the world.

While fishing communities make up a significant portion of world's population, they are grossly under represented in research on health and health outcomes.[4] The current study was planned to examine the extent to which health research has been focussed on the eye health issues of fishing communities, including the burden and causes of vision impairment and blindness, and access to and quality of eye care services.

Methods and Results

This review study was done in December 2013. We conducted a literature search of multiple databases, including Medline (1966-2012), Embase (1980-2012), CINAHL (1983-2012), Science Citation Index (1945-2012) and Social Sciences Citation Index (1956-2012). A combination of medical subject headings (MeSH) and text words representing eye health (i.e. eye diseases, eye problems, cataract, eye trauma, visual impairment, and blindness), fishing populations (fishers, fishermen and fishing communities) and measures of disease frequency (incidence, prevalence) were used to generate relevant

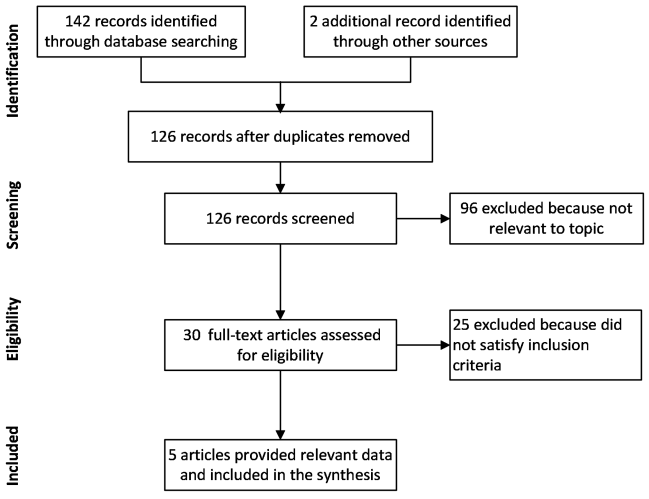

Figure: Flow diagram for selection of studies.

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Table: Key findings of the included studies in systematic review on the eye health of fishing communities.

Study identifier	Population	Key findings
Marmamula (2011, 2012)*[5,6]	1560 persons ≥ 40 years of age in fishing communities in Prakasam district, Andhra Pradesh, India	Prevalence of MVI†: 22.8% (95% CI, 20.7-24.9) Prevalence of SVI/blindness†: 7.1% (95% CI, 5.8 - 8.4). Leading causes of MVI: Cataract (77.2%) and uncorrected refractive error (21.4%), surgery related complications (1.4%) Leading causes of SVI/blindness: Cataract (92.8%), surgery related complications (4.5%), and uncorrected refractive error (0.9%)
Percin (2012)[7]	1166 small-scale fishermen (mean age ± SD: 46 year ± 12 years) working along the Aegean Sea coast in 76 fishing ports in Turkey	Prevalence of self-reported eye problems (one attended to by a physician in the last one year): 40.4%
Zytoon (2012)[8]	686 fishermen in El-Maaddiya fishing port, Egypt.	Prevalence of self-reported eye problems: 80.6% (95% CI, 77.5-83.5). Self-perceived causes of eye problems: Sun radiation (75.0%), sea water (66.0%), wind (44.1%), eye focus on sea surface (39.2%), night work (24.6%), jelly fish (15.4%), net shaking (14.6%), and fuel combustion exhaust (10.7%).
Novalbos (2008)[9]	247 fishery workers (mean age ± SD: 40.3 ± 11.5 years) employed in 19 of the 23 ports in Andalusia, Spain.	Prevalence of self-reported eye problems: 38.1%

*Values obtained by personal communication with the authors.
†MVI = moderate vision impairment SVI = moderate vision impairment.

citations. A database was constructed in EndNote X7 (Thomson Reuters, Inc., Carlsbad, CA, USA). The reference lists of all known primary and review articles were examined to identify additional citations.

The search yielded 142 records (Figure). Two additional records were identified through other sources. A total of 5 articles describing 4 different studies[5-9] were deemed relevant (Table). There was only one study in the literature that objectively assessed the burden and causes of vision impairment and blindness in fishing communities.[5] That cross-sectional study surveyed 1560 persons aged ≥40 years, in fishing communities in the Prakasam district of Andhra Pradesh in India, and found that 356(22.8%) (95% confidence interval [CI], 20.7-24.9) of them had bilateral moderate vision impairment (MVI) and another 111(7.1%) (95% CI, 5.8 - 8.4) had bilateral severe vision impairment (SVI) or blindness. Cataract accounted for 1204(77.2%) cases of moderate vision impairment (MVI) and 1448(92.8%) cases of severe vision impairment (SVI)/blindness.

We identified three cross-sectional surveys[7-9] that examined self-reported eye problems besides other health problems among fishery workers and fishermen. One study[7] interviewed 1166 small-scale fishermen (mean age: 46 ± 12 years) working along the Aegean Sea coast in Turkey and found that 471 (40.4%) of them had an eye problem (one attended to by a physician in the preceding one year). This concern was second only to musculoskeletal problems 984(84.4%). While 991(85%) fishermen reported eye problems due to light reflection off the sea surface, only 396(34%) said they used sunglasses.[7]

The second survey[8] interviewed 686 fishermen in El-Maaddiya fishing port, Egypt, in 2008. The prevalence of self-reported eye problems was 553(80.6%) (95% CI, 77.5-83.5). The main self-perceived causes of eye problems were solar radiation 514(75%), sea water 453(66%), wind 302(44.1%), and the need to focus on sea surface 269(39.2%). The third study[9] had 247 fishery workers (mean age: 40.3±11.5 years) employed in 19 of the 23 ports in Andalusia, Spain, and found the prevalence of self-reported eye problems to be 38.1%.

Discussion and Conclusion

This systematic review examined the extent to which global health research has been focussed on the eye health issues of fishing communities, i.e. burden and causes of vision impairment and blindness, and access to and quality of eye care services. It was disappointing to note that so little research has been carried out on this subject to date. Even in high-income countries, there has been a failure to provide such information. Most of these populations live in low and middle income countries (LMICs) where, directly or indirectly, the livelihood of more than 500 million people depends on fisheries and aquaculture.

Our review found only one study in the literature that has objectively assessed the burden and causes of vision impairment and blindness in fishing communities.[5] That study found the prevalence of bilateral moderate vision impairment to be 22.8% and of bilateral SVI/blindness to be 7.1% in people aged 40 years or older. The higher prevalence of vision loss estimated in the survey, compared with national estimates,[10] might reflect a

relatively poor access to eye care services among fishing communities than the general population. Furthermore, the age structure of the sample surveyed was slightly older which is expected to have a higher prevalence of age-related vision loss. The very high prevalence of cataract-related vision loss in this population may be partly attributable to the low cataract surgical coverage.

In our review, three of the four studies reported data on self-reported eye problems in fishermen or fishery workers. None of the published studies provided information about the availability, accessibility, acceptability and quality of eye care services which are the core contents of rights-based approaches to health.

One reason why so little is known about the eye health of fishermen and other members of this community is their hard-to-reach nature.[4] A particular challenge has been the remoteness of areas inhabited by fishing communities from the regional or sub-regional urban centres. Moreover, fishermen often spend long periods of time on the sea. Their mobile and self-employed nature makes it extremely difficult to trace and include them in research studies as does their dynamic work schedule which is susceptible to changes due to weather, catch and a number of other factors. Women in these populations are also difficult to reach. A sizeable proportion of them, in addition to taking major responsibility for housekeeping and childcare, work in fish processing or travel daily to more affluent neighbourhoods to work as housemaids and thus remain away from home for many hours. As a result of these barriers, epidemiological research on fishing communities can be both labour- and capital-intensive, requiring careful planning and coordinated effort and time.[4,11] The problem is also related to the general lack of epidemiological research in LMICs where most of the fishing populations reside and where marginalised populations, those most at risk of ill-health, are often overlooked by health researchers, academia, health planners and funding agencies.

Future systematic reviews should build on this work by encompassing other vulnerable and marginalised groups such as people living in poverty, ethnic, racial or religious minorities, people with disabilities, undocumented immigrants, indigenous populations, refugees, prisoners, female sex workers and transgenders.

This review has its limitations. First, the search was restricted to articles published in English language, which could have resulted in a language and/or publication bias. Second, experts were not contacted to identify unpublished studies.

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